



August 29, 2014

Ms. Kimberly Tisa, PCB Coordinator
U.S. Environmental Protection Agency Region 1
5 Post Office Square – Suite 100
Boston, Massachusetts 02109-3912

Re: PCB Remediation Completion Report and Monitoring and Maintenance Implementation Plan
Harvard University – William James Hall Roof, Cambridge, Massachusetts

Dear Ms. Tisa:

On behalf of the President and Fellows of Harvard College, please find attached a Final Completion Report documenting the PCB remediation activities completed at the roof of the William James Hall building, located at 33 Kirkland Street on the Harvard University campus in Cambridge, Massachusetts. This Report has been prepared in accordance with the Notification and the U.S. Environmental Protection Agency's April 17, 2014 PCB Cleanup and Disposal Approval granted under 40 CFR 761.61(a) and (c) and 761.79(h).

As required by Condition 20 of the Approval, this Report includes documentation of the PCB remediation activities completed at the site, verification sampling data and analytical laboratory reports, and copies of the waste shipment records associated with the management and disposal of PCB waste removed from the site. Appendix F of this Report also includes a Monitoring and Maintenance Implementation Plan (MMIP) prepared in accordance with Condition 18 of the Approval.

With the exception of the monitoring and maintenance activities described in the MMIP and the recordation of the deed notice to identify the encapsulation areas and restrictions on the affected areas, no further work is warranted to meet the conditions of the Approval. The Deed Notice is currently under review and once recorded will be submitted to the Agency under separate cover.

If you have any comments, questions, or require further information, please do not hesitate to e-mail or call me at the number listed above.

Sincerely,

WOODARD & CURRAN INC.

Jeffrey A. Hamel, LSP, LEP
Senior Vice President

cc: Aaron Townsley, Harvard



FINAL COMPLETION REPORT

Harvard University
William James Hall
33 Kirkland Street
Cambridge,
Massachusetts

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Appendix C: Product Technical Specification Sheets

Appendix D: Waste Shipment Records

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Appendix F: Monitoring and Maintenance Implementation Plan

1. INTRODUCTION

Woodard & Curran, Inc. has prepared this Final Completion Report on behalf of the President and Fellows of Harvard College (Harvard). The remediation of polychlorinated biphenyls (PCBs) at the penthouse of the roof of the William James Hall building, located at 33 Kirkland Street on the Harvard University campus in Cambridge, Massachusetts (the site), has been completed in accordance with the Notification¹ and the U.S. Environmental Protection Agency's (EPA) April 17, 2014 PCB Cleanup and Disposal Approval granted under 40 CFR 761.61(a) and (c) and 761.79(h) (the Approval). The Approval has been included as Appendix A to this Report.

As required by Condition 20 of the Approval, this Report includes documentation of the PCB remediation activities completed at the site, verification sampling data and analytical laboratory reports, and copies of the waste shipment records associated with the management and disposal of PCB waste removed from the site.

1.1 SITE DESCRIPTION

The building known as William James Hall, originally constructed in 1964, is a 15-story masonry building used by Harvard's Department's of Psychology, Sociology and Social Anthropology for classroom and office spaces. The building's original flat membrane roof was previously replaced in or around 1986. The remediation work described herein is related to the roof membrane replacement and renovation project performed in 2014. The central portion of the roof contains an inner wall constructed out of poured concrete and concrete aggregate panels that encloses the penthouse and mechanical equipment area. The mechanical enclosure wall contains a small louver and a door on the south façade, and one door on the east façade. The roof also contains several other mounted HVAC and electrical units. The roof is locked and non-accessible to building occupants. Building facility personnel are the only ones who access the roof and this is on a very limited basis, as there are no established work stations and only roof-top equipment.

A Site Locus map is provided as Figure 1-1 at the end of this section.

1.2 SITE BACKGROUND

William James Hall was constructed during a time period when PCBs were sometimes used in the manufacture of certain building materials (e.g., caulking). In preparation for a roof replacement project, a materials survey was conducted to determine the presence or absence of various hazardous materials within the renovation area, which included inspection and sampling suspect materials for asbestos and PCBs. Characterization results indicated that PCBs were present in caulking at concentrations up to 1,041 parts per million (ppm). Asbestos was not detected in any of the caulking samples tested. Due to the presence of PCBs at concentrations ≥ 50 ppm in certain exterior caulking and sealants and the scheduled roofing replacement project which included plans to disturb these materials, a PCB remediation plan was submitted to EPA on November 8, 2013 which was subsequently approved on April 17, 2014.

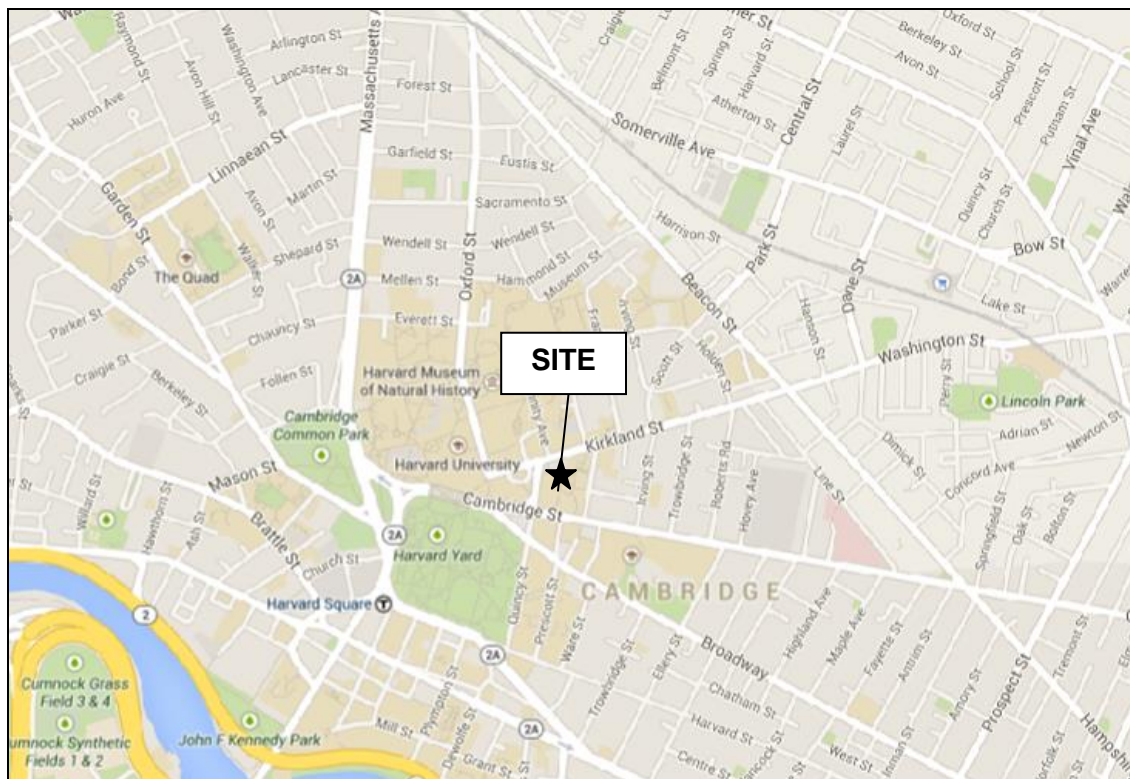
¹ Information was prepared by Woodard & Curran on behalf of Harvard to satisfy the requirements under 40 CFR 761.61(a) and (c) and 761.79(h). Information was submitted on November 8, 2013 (Remediation Plan), February 21, 2014 (Response to Comments), March 5, 2014 (via e-mail additional PCB Remediation Plan Clarification) and April 24, 2014 (Modification, Notification and Certification Conditions). These submittals, together, form the "Notification."

1.3 PROJECT TEAM

The remediation project team consisted of the following parties:

- Harvard University – Owner;
- Woodard & Curran – Environmental Consultant (PCB remediation);
- Northeast Remediation – Remediation Subcontractor (caulking and adjacent materials removal and encapsulation coatings); and
- W.S. Aiken – Roofing Contractor (encapsulation coatings, installation of new roof)

Figure 1-1: Site Locus Map



2. REMEDY IMPLEMENTATION

This section describes the PCB cleanup and disposal activities conducted with regard to the exterior PCB-containing roof caulking consistent with the conditions of the Approval.

2.1 REMEDY OVERVIEW

The remedial approach consisted of removal of PCB-containing caulking and certain building materials that were “coated” or in direct contact with the caulking as ≥ 50 ppm PCB bulk product waste, and encapsulation of certain building materials with PCBs detected above thresholds and scheduled to remain in place at the following three areas:

- Area 1 – Perimeter Caulking, Flashing, and Membrane
- Area 2 – Penthouse Expansion Joint Caulking
- Area 3 – Penthouse Louver Joint Caulking

As stated in the Notification, structural concerns prohibited a remedial approach which would include extensive masonry removals at locations adjacent to the ≥ 50 ppm PCB caulking. As such, masonry surfaces in direct contact with the caulking were subject to limited removals by surficial grinding. Following limited removals, verification sampling of the masonry was conducted to determine whether materials remaining in place met the low occupancy cleanup level of 25 ppm, which was determined to be the applicable cleanup level for these areas. If cleanup levels were not met, then an in-place management approach was implemented (i.e., application of a liquid encapsulant and/or physical barrier). Given the need to repair the roof in the work areas immediately following removal of PCB-containing sealants, the encapsulation step was implemented immediately after the removals and prior to receipt of the laboratory testing data.

2.2 NOTIFICATIONS AND CONTROLS

Prior to initiating the remedial activities, site preparations and controls were implemented as described in the Notification. These preparations included the establishment of site access controls and setting up work zone barriers and poly sheeting around work areas.

2.3 SAMPLING & ANALYTICAL METHODS

Verification samples collected in support of the remediation activities described herein were collected in accordance with generally accepted procedures for environmental sampling. Concrete sampling was conducted consistent with the EPA Region I Standard Operating Procedure for Sampling Porous Surfaces for PCBs (Revision 4, May 2011). Surface wipe samples were collected using hexane-saturated gauze wipes in accordance with the standard wipe test method under 40 CFR 761.123.

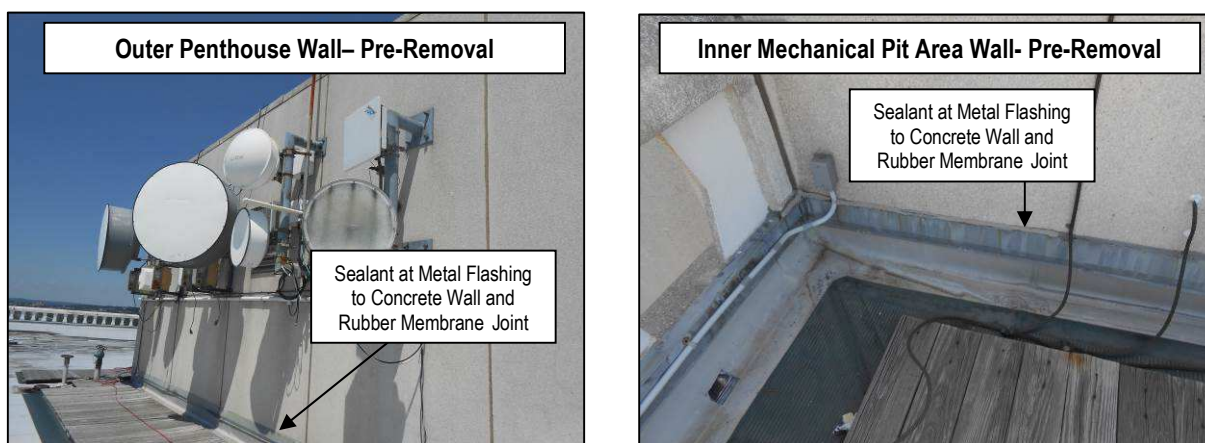
Samples were transferred on ice to Con-Test Analytical Laboratory of East Longmeadow, Massachusetts under standard chain of custody procedures. Samples were extracted using USEPA Method 3540C (Soxhlet extraction) and analyzed for PCBs using USEPA Method 8082. A summary of the verification sample results with data tables is presented in the following sections. Electronic versions of the laboratory analytical packages for the data presented in this report are provided in Appendix B.

2.4 AREA 1 – PERIMETER CAULKING, FLASHING AND MEMBRANE

Remediation work was performed at the Area 1 Perimeter Caulking, Flashing and Membrane between April and June 2014. In general, this included the removal and off-site disposal of PCB caulking, metal flashing and rubber membrane in direct contact with the caulking, and the encapsulation of concrete surfaces adjacent to the removed caulking as described below.

2.4.1 Caulking, Flashing, and Membrane Removal

Caulking containing PCBs ≥ 50 ppm was observed at the outer penthouse perimeter metal flashing to concrete panel joints (97 linear feet [l.f.]) and inner mechanical pit area perimeter and stairwell roof metal flashing to concrete wall joints (165 l.f.).



As indicated in the April 24, 2014 Modification submittal to EPA, the inner perimeter of the penthouse roof has a different configuration of the caulking, flashing, and adjacent masonry than the main roof and outer perimeter penthouse walls, and does not contain sealant at the flashing termination point on the concrete. As a result, remediation and verification of the 75 l.f. of the inner perimeter of the penthouse roof in Area 1 was not warranted because there was no caulking at this flashing/concrete termination joint. However, the mechanical pit area stairwell roof, which had a similar caulking, flashing and adjacent masonry configuration as the main roof, was added to the scope of the roof renovation by the project team. EPA approved the Modification in an April 24, 2014 email.

Between April 7 and April 22, 2014, the perimeter caulking, metal flashing, wood board (outer perimeter only), and portion of rubber membrane at Area 1 locations was removed for off-site disposal as PCB ≥ 50 ppm waste. The roofing membrane was cut approximately 10 inches below the joint to allow for patching. Surficial grinding was performed on the concrete surface within the joint formerly in direct contact with the caulking, to an extent such that residual caulking and/or staining was removed from the surfaces (based on visual inspection).

Upon the completion of the surficial grinding activities, Woodard & Curran visually inspected the work areas to document the extent of the removals and post-removal verification samples were collected from the former direct contact concrete surfaces at depth of 0.0-0.5 inches. Samples were collected at a frequency of 1 sample per 32 linear feet of caulking for a total of 9 samples. The results were reported as follows:

- Outer Penthouse Perimeter Wall – 4 samples; all 4 samples were reported with PCBs below 1ppm. Three samples were reported non-detect for PCBs as PCBs were not detected above the laboratory's minimum reporting limits which ranged from 0.092 to 0.10 ppm. One sample was reported with a detectable concentration of PCBs at 0.55 ppm.

- Inner Mechanical Pit Area Perimeter Wall – 4 samples; 3 out of the 4 samples collected from the inner mechanical pit area perimeter wall were reported with PCBs above the cleanup level at concentrations of 86, 140, and 535 ppm. One sample was reported with a detectable concentration of PCBs at 0.40 ppm (this sample was collected from the inner stairwell area).
- Inner Perimeter Wall above Stairwell – One sample was collected from the inner perimeter wall located above the stairwell. This sample was reported with a PCB concentration of 56 ppm, above the cleanup level.

A table summarizing the analytical data is provided as Table 2-1, and the locations of the concrete verification samples collected from the concrete in former direct contact with the caulking are presented on Figure 2-1.

2.4.2 Encapsulation of Concrete in Direct Contact with Caulking

Given the need to install new roofing in the work areas immediately following removal of PCB-containing sealants and surficial concrete grinding, the concrete in former direct contact with the caulking was encapsulated with one thick coat of Devcon 2-Ton epoxy prior to receipt of the bulk sample laboratory testing data. At the outer perimeter wall, the epoxy was extended from the joint to approximately 5 inches below joint where a piece of metal intersects the concrete panel. At the inner mechanical pit area perimeter wall, the epoxy was extended from the joint to approximately 10 inches below the joint (2 inches above the existing roof to allow for patching of the membrane). Because the new roof membrane and flashing was scheduled to be installed in the same location as the old membrane and flashing (i.e., it would not extend higher above the existing joint), the epoxy was not applied to the concrete above the joint at that time for aesthetic reasons. The product technical specification sheet for Devcon 2-Ton epoxy is provided in Appendix C.

After encapsulation, baseline surface wipe samples were collected from the epoxy-encapsulated surfaces to evaluate the effectiveness of the encapsulation and establish a baseline for future monitoring. Based on the bulk sample results described above and in accordance with the Notification, two of the epoxy wipe samples (1 per 83 linear feet of caulking) collected from locations with PCB concentrations above 25 ppm in the concrete were submitted for laboratory analysis. Samples were analyzed from the south façade inner perimeter wall joint and the north façade inner perimeter wall joint above the stairs. The analytical results of the verification wipe samples indicated that the Devcon 2 Ton epoxy effectively contained residual concentrations of PCBs on the direct contact concrete surfaces, as both samples were reported with PCB concentrations below the minimum laboratory reporting limit of 0.2 µg/100 cm² (refer to Table 2-1). No baseline surface wipe samples analyzed from the outer penthouse perimeter flashing joints as all four bulk concrete verification samples were reported below the low occupancy cleanup level of 25 ppm, as well as below the high occupancy criteria of 1 ppm.

2.4.2.1 Encapsulation of Concrete Not In Direct Contact with Caulking

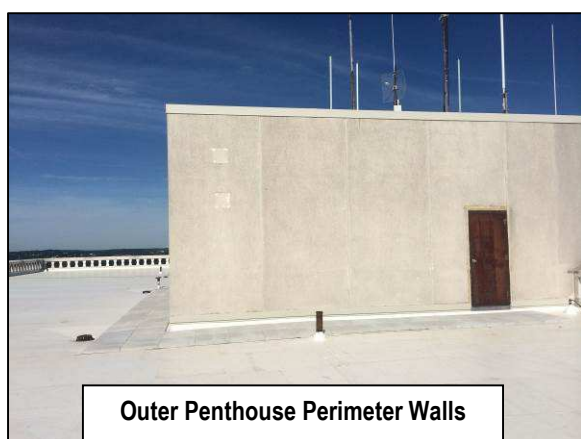
As indicated above, four out of the five direct contact bulk concrete samples collected from the inner perimeter walls of the mechanical pit and stairwell roof were reported with PCBs > 25 ppm, with concentrations up to 535 ppm. Based on these results, and in accordance with the Notification, lateral delineation samples were collected to determine the extent of PCBs > 25 ppm in non-direct contact surfaces away from the joint. Samples were collected at the same frequency and general location as the direct contact verification samples reported with PCBs > 25 ppm. A total of five samples were collected above the inner penthouse perimeter flashing joint (including the single location with the PCBs < 25 ppm collected from western stairwell wall).

Given that horizontal electrical conduits were present at several locations along the perimeter wall approximately 6 inches above the former joint, lateral delineation samples were collected at a distance of 5.0 – 6.0 inches above the former caulked joint (just below select conduits). PCBs were reported above 1 ppm in four out the five samples with

concentrations up to 600 ppm. One sample collected from the western stairwell wall was reported with a PCB ≤ 1 ppm, similar to the direct contact concrete sample collected from the same location.

Based on the differing results between the outer penthouse perimeter walls and the inner penthouse / mechanical pit area perimeter walls, a follow-up survey of the perimeter walls was conducted. Results of the visual inspection indicated that there were several key distinctions, as follows:

- The outer penthouse perimeter walls were constructed of concrete aggregate panels that appear to be “attached” to the inner penthouse perimeter poured concrete walls (see left photo below).
- The inner penthouse perimeter and stairwell walls appear to have been re-worked over the years as part of rooftop equipment installations (see right photo below).



As part of the roof renovation activities being performed, an elastomeric coating was being applied to the inner penthouse perimeter walls. For the following reasons, the project team decided to consider the entire wall coating as the PCB encapsulation area: 1) the results of the bulk concrete samples collected from the inner penthouse perimeter walls indicated that PCBs were present at concentrations above the cleanup level without showing a clear trend of decreasing concentrations at increasing distances from the joint; 2) the entire walls were consistently being coated with an adequate coating for encapsulation (i.e., similar to other products that have been used for encapsulation of PCBs at other project sites, and have proven to be an effective barrier); and 3) the limited to restricted access of the roof (locked with keyed access only). The coating was Conpro Lastic, a tinted acrylic waterproofing coating, manufactured by Conproco. This coating is an anti-carbonation, waterproof, elastomeric coating specifically formulated to provide long term protection to concrete and masonry (refer to the product technical specification sheet in Appendix C).

The coating was applied to all accessible areas of vertical walls of the open mechanical area (approximately 2,000 square feet of wall surface) following the manufacturer's specifications. Areas that were not accessible for coatings were located behind physical barriers such as electrical outlet boxes and mechanical equipment brackets.

Following encapsulation, a total of 4 baseline surface wipe samples (1 per wall) were collected from representative areas biased toward locations most likely to be touched by a human receptor (i.e., approximately 4 feet above ground surface) to evaluate the effectiveness of the encapsulation and establish a baseline for future monitoring. Samples were reported with PCB concentrations below the target cleanup level of $1 \mu\text{g}/100 \text{ cm}^2$ in two of the samples at concentrations of 0.27 and $0.91 \mu\text{g}/100 \text{ cm}^2$ and slightly above the target level in the other two samples (concentrations of 1.3 and $2.08 \mu\text{g}/100 \text{ cm}^2$). Given that the roof is not a continuously occupied space and is locked with restricted access (keyed access required) and the concentrations were near the target action level, The

encapsulated surfaces were transitioned into long term monitoring as described in the Monitoring and Maintenance Implementation Plan (MMIP). A figure depicting the encapsulated surfaces is provided as Figure 2-2.

2.5 AREA 2 – PENTHOUSE EXPANSION JOINT CAULKING

Work was performed at Area 2 Penthouse Expansion Joints between April 7 and April 22, 2014. In general, this included the removal and off-site disposal of PCB caulking and surficial grinding of the concrete panels in former direct contact with the caulking. Additional details on the remediation work performed and sampling results are presented below.

Sealant containing PCBs ≥ 50 ppm was observed at the outer penthouse wall expansion joints (203 l.f.; 14 joints at 14.5 l.f. per joint). Between April 7 and April 22, 2014, the penthouse expansion joint caulking accessible from the main roof was removed for off-site disposal as PCB ≥ 50 ppm waste. Surficial grinding was performed on the concrete joint surfaces formerly in direct contact with the caulking, to an extent such that residual caulking and/or staining was removed from the surfaces. Upon the completion of the surficial grinding activities, Woodard & Curran visually inspected the work areas to document the extent of the removals and post-removal verification samples were collected from the former direct contact concrete surfaces at depth of 0.0-0.5 inches. One verification sample was collected from each of the first three joints and then every third joint thereafter for a total of six samples (1 per 34 linear feet of caulking). Of note, the Notification indicated that there were 18 individual control joints, spaced approximately five feet apart (laterally) and 15 feet in height for a total of 270 l.f. of caulking which would result in a total of eight samples (1 per 34 linear feet of caulking); however, during implementation, it was noted that there were only 14 individual control joints spaced between 6 to 7 feet apart (laterally) and 14.5 feet in height for a total of 203 l.f. of caulking. Based on this reduced quantity and using the same sample frequency of 1 per 34 l.f. of caulking, six samples were collected. All six samples were reported non-detect for PCBs, as PCBs were not detected above the laboratory's minimum reporting limits which ranged from 0.095 to 0.10 ppm (refer to Table 2-1). A figure depicting the sample locations is provided as Figure 2-1.

Immediately following removal of PCB-containing sealants, the concrete in former direct contact with the caulking was encapsulated with one thick coat of Devcon 2-Ton epoxy prior to receipt of the laboratory testing data; however, because all six bulk verification samples were reported as non-detect for PCBs (< 1 ppm), no additional remedial actions were conducted at Area 2, and the encapsulated surfaces at Area 2 will not be subject to ongoing monitoring or inclusion in the deed notice. Photographs of the removal and encapsulated joints are provided below.



2.6 AREA 3 – PENTHOUSE LOUVER CAULKING

Remediation work was performed at Area 3 Penthouse Louver between April and June 2014. In general, this included the removal and off-site disposal of PCB caulking and the metal louver in direct contact with the caulking, and the encapsulation of concrete surfaces adjacent to the removed caulking as described below.

2.6.1 Caulking and Louver Removal

Sealant containing PCBs ≥ 50 ppm was observed around the perimeter of one penthouse louver between the metal louver frame to concrete wall joint (11 linear feet). Between April 17 and April 22, 2014, the louver joint caulking, metal louver and associated components were removed for off-site disposal as PCB ≥ 50 ppm waste. Surficial grinding was performed on the concrete joint surfaces formerly in direct contact with the caulking to an extent such that residual caulking and/or staining was removed from the surfaces (based on visual inspection). Upon the completion of the surficial grinding activities, Woodard & Curran visually inspected the work areas to document the extent of the removals and one post-removal verification sample was collected from the former direct contact concrete surfaces at depth of 0.0-0.5 inches. This sample was reported with a PCB concentration of 390 ppm, above the low occupancy cleanup goal of 25 ppm. Of note, the louver is located within the open mechanical area on an inner concrete wall; this result is similar to the other samples collected from the inner concrete walls (see Area 1 discussion above).

2.6.2 Encapsulation of Concrete in Direct Contact with Caulking

Immediately following removal of PCB-containing sealants, the concrete in former direct contact with the caulking was encapsulated with one thick coat of Devcon 2-Ton epoxy prior to receipt of the laboratory testing data. After encapsulation, one baseline surface wipe sample was collected from the epoxy-encapsulated surface to evaluate the effectiveness of the encapsulation and establish a baseline for future monitoring.



In accordance with the Notification, because the bulk sample result was reported with PCBs > 25 ppm, the epoxy wipe sample collected from this location was submitted for analysis. The analytical result of the verification wipe sample indicated that the Devcon 2 Ton epoxy effectively contained residual concentrations of PCBs on the direct contact concrete surfaces, as the sample was reported as non-detect for PCBs ($< 0.2 \mu\text{g}/100 \text{ cm}^2$).

2.6.2.1 Encapsulation of Concrete Not In Direct Contact with Caulking

As indicated above, the direct contact bulk concrete sample collected from the louver joint was reported with PCB above the low occupancy cleanup level of 25 ppm (390 ppm). Based on this result, and in accordance with the Notification, one lateral delineation sample was collected at a distance of 5.0 to 6.0 inches from the joint to determine the extent of PCBs > 25 ppm in non-direct contact surfaces away from the joint. PCBs were reported above the low occupancy cleanup level of 25 ppm at a concentration of 530 ppm (similar to the lateral delineation samples collected at a distance of 5.0 to 6.0 inches above the inner penthouse perimeter flashing joint, which were reported with PCB concentrations up to 600 ppm; see Section 2.4.2.1 above).

As described in Section 2.4.2.1 above, the entire inner walls of the mechanical pit area (including concrete adjacent to the Area 3 louver) were encapsulated with Conpro Lastic, a tinted acrylic waterproofing coating. Results of the baseline surface wipe samples collected from the coated walls are presented in Section 2.4.2.1.

The encapsulated surfaces located adjacent to the Area 3 louver will be subject to ongoing monitoring as described in the MMIP.

2.7 WASTE STORAGE AND DISPOSAL

The following activities were completed with regard to the proper storage and disposal of PCB wastes:

- Secure, lined, and covered waste containers (i.e., 55-gallon DOT-approved steel containers) were staged for the collection of PCB wastes generated during the work activities in accordance with 40 CFR 761.65.
- PCB waste containers were properly labeled and marked in accordance with 40 CFR 761.40.
- Upon removal from the building, PCB wastes were placed into the appropriate waste containers immediately upon removal or at the end of each work day.
- Caulking containing PCBs ≥ 50 ppm and building materials coated or in direct contact with this caulking were transported off-site for disposal as PCB waste ≥ 50 ppm. A total of 575 kilograms of PCB waste contained in 12 drums was removed for off-site disposal as PCB waste ≥ 50 ppm to the CWM Chemical Services, Inc. a hazardous waste disposal facility located in Model City, New York between April and May 2014.
- Copies of waste manifests and certificates of disposal are included in Appendix D of this Report.

2.8 SITE RESTORATION

After completing the PCB remediation activities described herein, new roofing and louver components were installed, and the roof renovation was completed according to the architect's plans for the overall site renovation project.

2.9 DATA QUALITY ASSESSMENT

This data quality and data usability assessment has been conducted to review the verification samples collected in support of the remediation and verification activities. Data validation and review was conducted by a third-party validator, Data Check, Inc. of New Durham, New Hampshire. This review included a check of field documentation including sample collection and preservation methods, a check of the laboratory data and documentation, a review of the internal laboratory QA/QC procedures and results including surrogate recoveries, blank results, laboratory control standard (LCS) and laboratory control standard duplicate (LCSD) results, an evaluation of sample holding times, and field duplicate results. The assessment was performed in general conformance with the USEPA Region I Functional Guidelines and the Quality Control Guidelines. Data Check's data validation summary is provided in Appendix E. A summary of the data usability assessment is presented below:

- Some samples were analyzed at dilutions due to the concentration of PCBs present in the samples and/or due to sample matrix. Elevated quantitation limits are reported in these samples as a result of the dilutions performed.
- One field duplicate bulk concrete sample was collected and submitted to the laboratory as part of the field QA/QC procedures. The relative percent difference (RPD) between the primary and duplicate samples met acceptance criteria, and no results were qualified as estimated due to the field duplicate precision result.
- One field equipment blank sample was collected and submitted to the laboratory as part of the field QA/QC procedures. The blank sample was non-detect for PCBs, and no qualifications were applied to the data.
- Certain sample results were qualified as estimated (J) if the RPD between the column results was outside of the acceptance criteria ($< 25\%$). Regardless of the RPD between the column results, the laboratory reports the higher of the two column results. Five samples were qualified as estimated based on column RPD $\geq 25\%$ as indicated in the data summary table provided with this report.
- Accuracy of the analytical data was assessed by reviewing LCS/LCSD results and surrogate recoveries.
 - The LCS/LCSD recoveries met acceptance criteria for all data sets, and no qualifiers were applied to the data.
 - Surrogate recoveries met acceptance criteria or were diluted out with two exceptions, which did not result in data qualification as noted in the data validation summary.
- Representativeness of the data was evaluated qualitatively utilizing site use information and sampling data. Samples were extracted and analyzed within allowable holding times. Consistent procedures and laboratory analysis of the data were achieved. Sample containers were packed on ice and were accompanied by complete chain of custody forms from the time of sample collection until laboratory delivery. PCBs were not detected in the laboratory method blank analyses, indicating that there were no interferences introduced at the laboratory during sample analysis.
- The data packages were reviewed to ensure that all sample and associated quality assurance results were available. The completeness review indicated that all samples were analyzed and all quality control results were available to complete the data validation process.

Based on a review of the existing site data, the data adequately represents the materials tested, and the samples collected are considered usable for the purposes of characterizing PCB-affected media and verifying remediation efforts in accordance with 40 CFR Part 761.

3. DEED NOTICE

Pursuant to Condition 21 of EPA's April 17, 2014 Approval, a notation on the deed for the property will be recorded as required under 40 CFR 761.61(a)(8)(i)(A). The notice will be recorded with the Middlesex County Registry of Deeds. Once recorded, a copy of the recorded deed notice and a signed certification will be provided to EPA.

4. MONITORING AND MAINTENANCE IMPLEMENTATION PLAN

Pursuant to Condition 18 of EPA's April 17, 2014 Approval, a Monitoring and Maintenance Implementation Plan has been prepared to monitor the effectiveness of the remedy for encapsulated surfaces over time. The MMIP, which is included as Appendix F to this Report, includes the following:

- A description of the monitoring and maintenance activities that will be conducted, including inspection criteria, frequency, and routine maintenance activities;
- Sampling protocols, sampling frequency, analytical criteria and reporting requirements;
- A communications component which details how the maintenance and monitoring results will be communicated to EPA and personnel responsible for the building use;
- A worker training component for maintenance workers or for any person that will be conducting work that could impact the building coatings/barriers; and
- A recordkeeping and reporting schedule to submit the results of the MMIP activities to EPA.

5. SUMMARY AND CONCLUSIONS

The PCB remediation activities described in this Report have been performed in accordance with the Notification and the conditions of EPA's April 17, 2014 Approval.

In summary, the work included the following activities:

- Removal of PCB-containing building materials for off-site disposal, including exterior caulking and certain components coated or in direct contact with the former caulking. A total of 575 kilograms of PCB waste contained in 12 drums was removed for off-site disposal as ≥ 50 ppm PCB waste to the CWM Chemical Services, Inc. hazardous waste disposal facility located in Model City, New York.
- Encapsulation of PCB-impacted building concrete remaining in place. Residual concentrations of PCBs remain at levels greater than 1 ppm in select concrete surfaces adjacent to former PCB caulking. These surfaces have been encapsulated using a combination of liquid coatings (e.g., epoxy or acrylic coatings) and physical barriers (e.g., metal flashing, rubber roof membrane) as generally depicted on Figure 2-2.
- Development of a long term monitoring and maintenance program to be implemented in accordance with the MMIP to assess and verify the effectiveness of the coatings and/or barriers over time.

With the exception of the monitoring and maintenance activities described in the MMIP and the recordation of the deed notice to identify the encapsulated areas and restrictions at the affected areas, no further work is warranted to meet the conditions of the Approval.

6. REFERENCES

- U.S. Environmental Protection Agency (EPA) Title 40, Part 761 Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions.
- U.S. EPA, 2014. PCB Cleanup and Disposal Approval under 40 CFR 761 (a) and (c) and 761.79(h), William James Hall, Cambridge, Massachusetts. April 17.
- Woodard & Curran, Inc., 2013. PCB Remediation Plan under 40 CFR 761.61(a) and (c), Harvard University, William James Hall Roof, Cambridge, Massachusetts. November 8.
- Woodard & Curran, Inc., 2014b. Supplemental information provided to EPA via email. February 21.
- Woodard & Curran, Inc., 2014c. Supplemental information provided to EPA via email. March 5.
- Woodard & Curran, Inc., 2014d. Notification and Certification Conditions, PCB Cleanup and Disposal Approval under 40 CFR 761.61(a) and (c) and 761.79(h), William James Hall, Harvard University, Cambridge, Massachusetts. April 24.

Table 2-1
Verification Sample Results
William James Hall - Harvard University

Location	Sample Description	Bulk Concrete Samples						Surface Wipe Samples						
		Distance from Joint (inches)	Bulk Sample ID	Sample Date	Reporting Limit	Total PCBs	Qualifier	Distance from Joint (inches)	Wipe Sample ID	Sample Date	Reporting Limit	Total PCBs	Qualifier	
Area 1 - Roof Perimeter Verification Samples														
Outer Penthouse Perimeter Wall	East penthouse outer façade, 27 ft north of southern penthouse façade	Direct contact	WJH-VBC-035	4/14/14	0.10	ND		Wipe sample analysis is not warranted based on bulk verification sampling results remediation complete.						
	South penthouse outer façade, 5 ft west of eastern penthouse façade	Direct contact	WJH-VBC-036	4/14/14	0.092	ND								
	South penthouse outer façade, 4 ft east of western penthouse façade	Direct contact	WJH-VBC-037	4/14/14	0.096	ND								
	West penthouse outer façade, 28 ft north of southern penthouse façade	Direct contact	WJH-VBC-043	4/16/14	0.096	0.55								
Inner Mechanical Pit Area Perimeter Wall	East wall, 5 ft south of door	Direct contact	WJH-VBC-038	4/14/14	20	140		36	WJH-VWC-087	06/16/14	0.2	2.08		
		5.0 - 6.0	WJH-VBC-081	5/13/14	96	600								
	West wall,12 ft south of northern wall	Direct contact	WJH-VBC-048	4/17/14	9.7	86	J	36	WJH-VWC-088	06/16/14	0.2	0.91		
		5.0 - 6.0	WJH-VBC-083	5/13/14	97	290	J							
	South wall, 12 ft west of eastern wall	Direct contact	WJH-VBC-051	4/21/14	50	535		Direct contact	WJH-VWE-057	04/22/14	0.2	ND		
		5.0 - 6.0	WJH-VBC-084	5/13/14	96	330	J	36	WJH-VWC-089	06/16/14	0.2	1.3		
	North wall on stairwell wall perpendicular to and 4 ft from northern wall	Direct contact	WJH-VBC-047	4/17/14	0.098	0.40								
		5.0 - 6.0	WJH-VBC-082	5/13/14	0.098	0.56	J							
		North wall, 15 ft east of western wall							36	WJH-VWC-090	06/16/14	0.2	0.27	
	Inner Perimeter Wall Above Stairs	North wall above stairwell, 1 ft west of eastern wall	Direct contact	WJH-VBC-050	4/21/14	9.6	56		Direct contact	WJH-VWE-059	04/22/14	0.2	ND	
5.0 - 6.0			WJH-VBC-085	5/13/14	1.9	23	J							

Table 2-1
Verification Sample Results
William James Hall - Harvard University

Location	Sample Description	Bulk Concrete Samples						Surface Wipe Samples					
		Distance from Joint (inches)	Bulk Sample ID	Sample Date	Reporting Limit	Total PCBs	Qualifier	Distance from Joint (inches)	Wipe Sample ID	Sample Date	Reporting Limit	Total PCBs	Qualifier
Area 2 - Penthouse Expansion Joint Verification Samples													
Penthouse Expansion Joints	East penthouse façade, third joint from south, 4 ft ags	Direct contact	WJH-VBC-030	4/10/14	0.098	ND		Wipe sample analysis is not warranted based on bulk verification sampling results remediation complete.					
	East penthouse façade, second joint from south, 2 ft ags	Direct contact	WJH-VBC-031	4/10/14	0.098	ND							
	East penthouse façade, southernmost joint, 4 ft ags	Direct contact	WJH-VBC-032	4/10/14	0.095	ND							
	South penthouse façade, third joint from east, 5 ft ags	Direct contact	WJH-VBC-033	4/10/14	0.095	ND							
	South penthouse façade, westernmost vertical joint, 8 ft ags	Direct contact	WJH-VBC-034	4/14/14	0.098	ND							
	West penthouse façade, third joint from south	Direct contact	WJH-VBC-042	4/16/14	0.10	ND							
Area 3 - Louver Perimeter Verification Samples													
Louver	Western vertical joint	Direct contact	WJH-VBC-049	4/21/14	47	390		Direct contact	WJH-VWE-061	04/22/14	0.2	ND	
		5.0 - 6.0	WJH-VBC-080	5/14/14	89	530							

- Notes:
1. All bulk samples are collected at a depth of 0-0.5 inches from the masonry surface; results are reported in units of milligrams per kilogram (mg/kg).
 2. All wipe samples are collected over 100 cm² areas in accordance with the standard wipe test method; results are presented in micrograms per 100 square centimeters (ug/100cm²).
 3. Laboratory samples were extracted by Soxhlet (Method 3540C) and analyzed for PCBs by Method 8082.
 4. ND = Not detected above minimum reporting limit, as indicated.
 5. J = Analytical result is qualified as estimated based on data validation.



40 SHATTUCK ROAD | SUITE 110
ANDOVER, MASSACHUSETTS 01810
TEL. 978.557.8150

CLIENT **HARVARD**

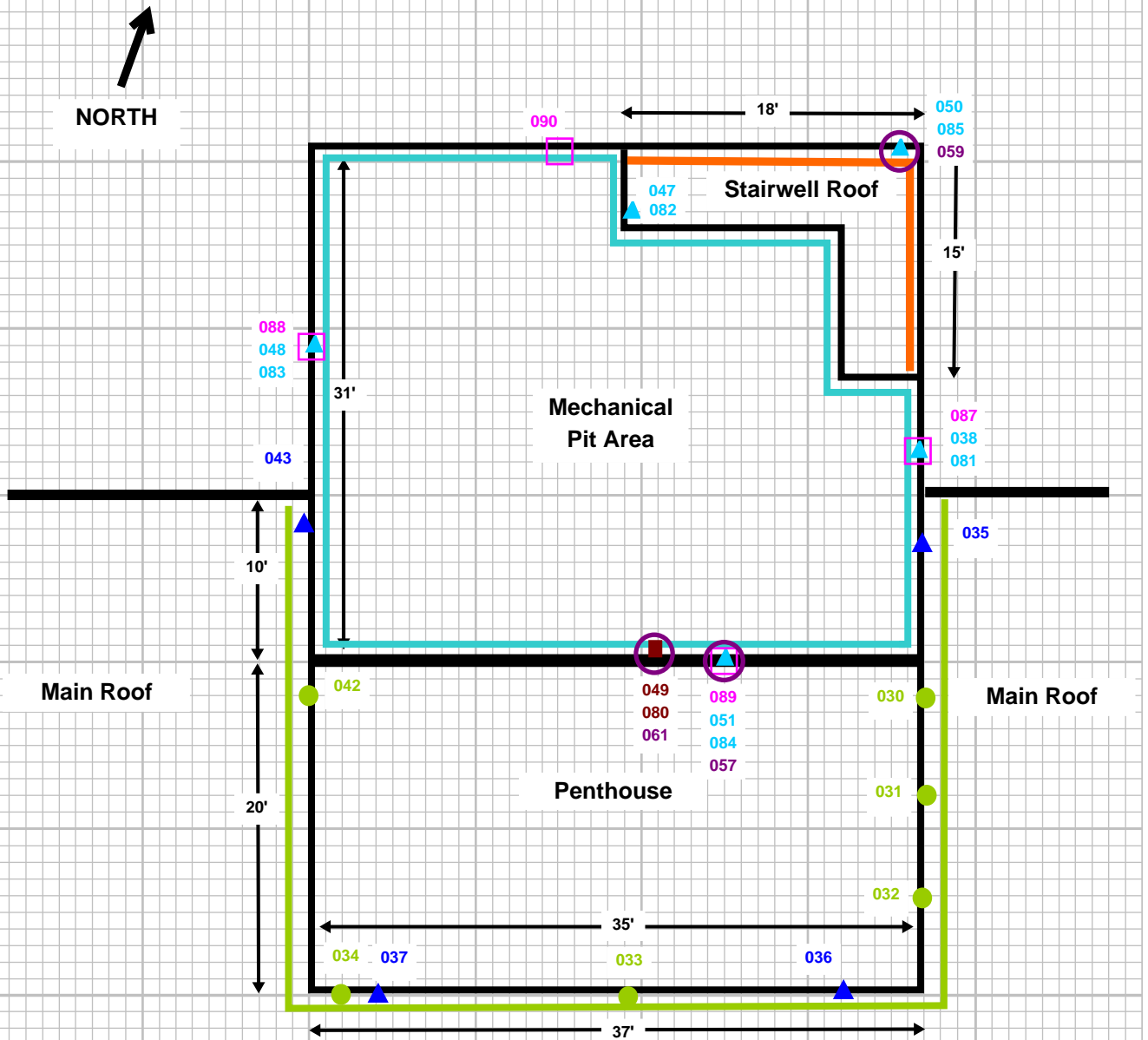
PROJECT **WILLIAM JAMES HALL**

DESIGNED BY _____ DATE **August 29, 2014**

CHECKED BY _____ DATE _____

PROJECT NO. **226574** SHEET NO. **1** OF **1**

FIGURE 2-1: VERIFICATION SAMPLE LOCATIONS



LEGEND

- 038 ▲ = Area 1 - Inner Wall Direct and Indirect Contact Concrete
- 035 ▲ = Area 1 - Outer Wall Direct Contact Concrete
- 030 ● = Area 2 - Expansion Joint Direct Contact Concrete
- 049 ■ = Area 3 - Louver Direct and Indirect Contact Concrete
- 057 ○ = Area 1 - Inner Wall Direct Contact Wipe
- 087 □ = Area 1 - Inner Wall Indirect Contact Wipe

- = Outer Wall Boundary
- = Inner Wall Boundary
- = Stairwell Wall Boundary

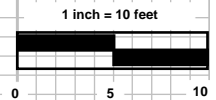
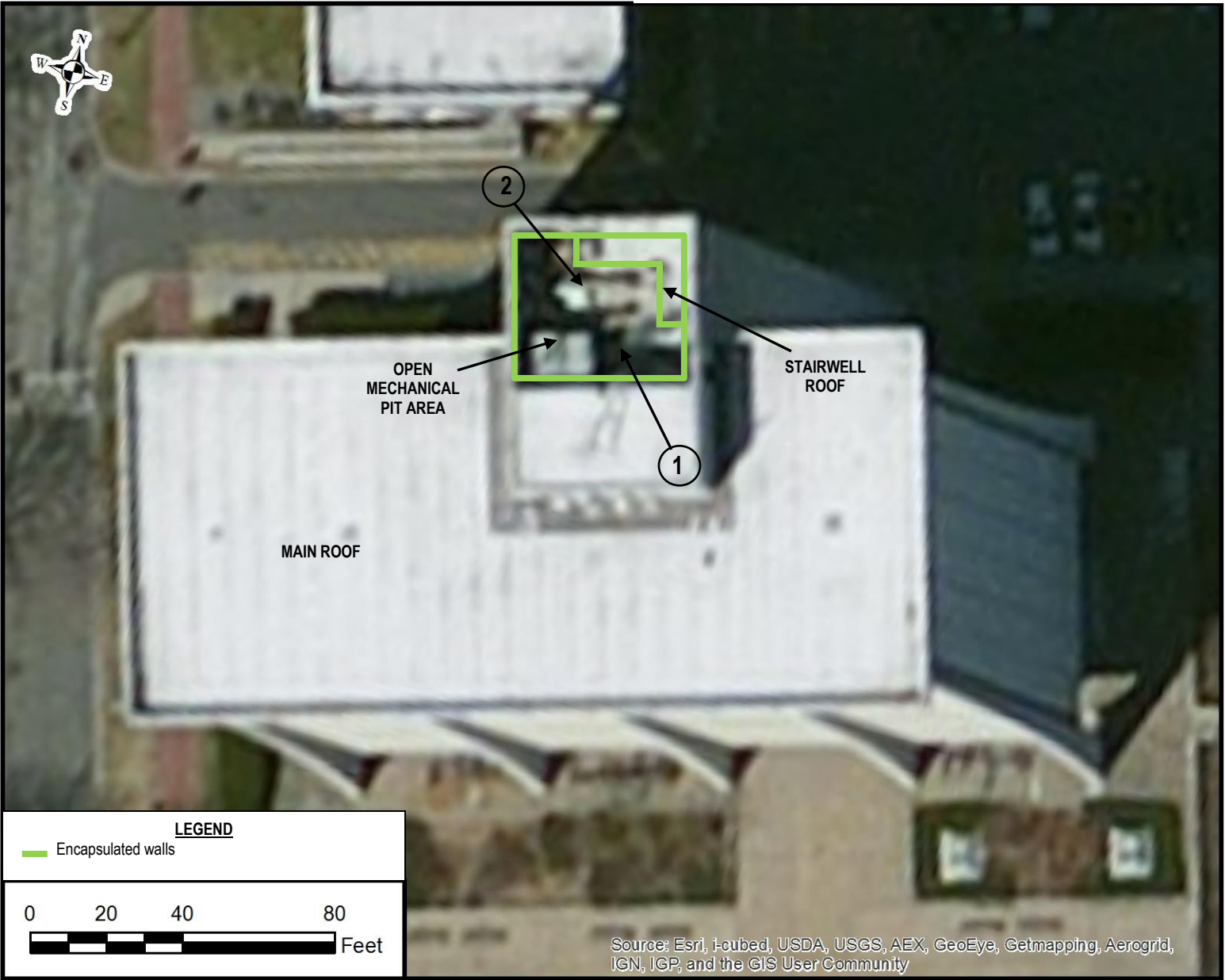


FIGURE 2-2: ENCAPSULATED SURFACES



NOTES:

- 1.) CONCRETE IN FORMER DIRECT CONTACT WITH PCB-CONTAINING FLASHING/MEMBRANE SEALANT LOCATED ALONG THE PERIMETER OF THE OPEN MECHANICAL PIT AREA WALLS ENCAPSULATED WITH DEVCON 2 TON EPOXY AND SUBSEQUENTLY COVERED BY NEW METAL FLASHING AND RUBBER MEMBRANE; TYPICAL FLASHING JOINT SHOWN IN PHOTO LOCATIONS MARKED (A)
- 2.) CONCRETE IN FORMER DIRECT CONTACT WITH PCB-CONTAINING LOUVER SEALANT ENCAPSULATED WITH DEVCON 2 TON EPOXY AND SUBSEQUENTLY COVERED BY NEW LOUVER; LOUVER SHOWN IN PHOTO LOCATION MARKED (B)
- 3.) INNER WALLS OF OPEN MECHANICAL PIT AREA ENCAPSULATED WITH CONPRO ELASTIC OR LOCATED BEHIND PHYSICAL BARRIERS (I.E., ELECTRICAL BOXES, MECHANICAL EQUIPMENT BRACKETS); TYPICAL WALLS SHOWN IN PHOTO LOCATIONS MARKED (C)



PHOTO ①



PHOTO ②

APPENDIX A: EPA APPROVAL (APRIL 17, 2014)



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION I

5 POST OFFICE SQUARE, SUITE 100
BOSTON, MASSACHUSETTS 02109-3912

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

APR 17 2014

Kelly McQueeney
Associate Director of Project Support Services and Remediation
Harvard University Environmental Health, Safety and Emergency Management
46 Blackstone Street
Cambridge, Massachusetts 02139

Re: PCB Cleanup and Disposal Approval under 40 CFR §§ 761.61(a) and (c)
and § 761.79(h)
William James Hall
Harvard University
Cambridge, Massachusetts

Dear Ms. McQueeney:

This is in response to the President and Fellows of Harvard College (Harvard) Notification¹ for approval of a proposed plan to address PCB contamination located on the William James Hall roof at 33 Kirkland Street, Cambridge, Massachusetts. Specifically, Harvard has identified PCB-contaminated materials located on the penthouse (the Site) that exceed the allowable PCB levels under 40 CFR § 761.20(a), § 761.61, and § 761.62.

In its Notification Harvard has proposed the following PCB cleanup and disposal plan:

- Remove all penthouse PCB caulk with greater than or equal to (\geq) 50 parts per million (ppm), metal flashing, membrane beneath flashing, and louver, and dispose as a *PCB bulk product waste* in a RCRA hazardous waste landfill in accordance with 40 CFR § 761.62(a);
- Remove residual caulk by lightly grinding the *porous surfaces* remaining in place and dispose of as a \geq 50 ppm *PCB remediation waste* in a RCRA hazardous waste landfill in accordance with § 761.61(a)(5)(i)(B)(2)(iii);

¹ The Notification was prepared by Woodard & Curran on behalf of the President and Fellows of Harvard College (Harvard) to satisfy the requirements under 40 CFR §§ 761.61(a) and (c). Information was submitted dated November 8, 2013 (PCB Remediation Plan) and March 5, 2014 (email response to EPA questions concerning sampling). These submittals shall be referred to as the "Notification".

- Prior to encapsulation, conduct sampling of the decontaminated *porous surfaces* to confirm PCB concentrations remaining in place;
- Encapsulate the *porous surfaces* located directly in contact with the PCB caulk with an epoxy coating and collect post-encapsulation verification samples;
- Prepare a long-term monitoring and maintenance implementation plan (MMIP) if PCB concentrations greater than ($>$) 25 ppm remain at the Site; and,
- Prepare a deed notice if PCB concentrations > 1 ppm remain at the Site.

With exception of the verification sampling requirements under § 761.61(a)(6), the information provided in the Notification meets the requirements under 40 CFR § 761.62(a) for removal of PCB caulk and PCB-contaminated building materials, and 40 CFR § 761.61(a) and (c) and § 761.79(h) for decontamination and/or encapsulation of the *porous surfaces*.

Harvard has proposed a verification sampling frequency based on the type of caulk joint. (See Attachment 1, Condition 13.a.ii). Based on the PCB concentrations in the caulk, the proposed removal plan, and the Site location, EPA has determined that the alternative sampling is reasonable and will not create an unreasonable risk of injury to public health or the environment. EPA may approve this deviation from the verification sampling requirements under § 761.61(c).

Harvard may proceed with its plan in accordance with 40 CFR §§ 761.61(a) and (c); § 761.62(a); § 761.79(h); its Notification; and, this Approval, subject to the conditions of Attachment 1.

Under this Approval, EPA is reserving its rights to require additional cleanup and/or mitigation measures should the results of the long-term sampling indicate that an unreasonable risk to building users remains following the abatement activities.

Questions and correspondence regarding this Approval should be directed to:

Kimberly N. Tisa, PCB Coordinator (OSRR07-2)
United States Environmental Protection Agency
5 Post Office Square, Suite 100
Boston, Massachusetts 02109-3912
Telephone: (617) 918-1527
Facsimile: (617) 918-0527

EPA shall not consider this project complete until it has received all submittals required under this Approval. Please be aware that upon EPA receipt and review of the submittals, EPA may request any additional information necessary to establish that the work has been completed in accordance with 40 CFR Part 761, the Notification, and this Approval.

Sincerely,

A handwritten signature in blue ink, appearing to read "James T. Owens III", with a stylized flourish at the end.

James T. Owens III, Director
Office of Site Remediation & Restoration

cc Jeffrey Hamel, Woodard & Curran
MassDEP - Boston
File

Attachment 1 – PCB Approval Conditions

ATTACHMENT 1:

**PCB CLEANUP AND DISPOSAL APPROVAL CONDITIONS
WILLIAM JAMES HALL ROOF – PENTHOUSE AREA (the Site)
HARVARD UNIVERSITY
33 KIRKLAND STREET
CAMBRIDGE, MASSACHUSETTS**

GENERAL CONDITIONS

1. This Approval is granted under the authority of Section 6(e) of the Toxic Substances Control Act (TSCA), 15 U.S.C. § 2605(e), and the PCB regulations at 40 CFR Part 761, and applies solely to the *PCB bulk product waste* and the *PCB remediation waste* located at the Site and identified in the Notification.
 - a. In the event that the President and Fellows of Harvard College (Harvard) conducts any repairs, renovations, and/or demolition on the mechanical equipment room or associated stairwell façade, Harvard shall conduct an investigation to determine if PCBs are present that are regulated under the federal PCB regulations at 40 CFR Part 761. In this event, Harvard will be required to notify EPA and to clean up the PCB-contaminated materials in accordance with 40 CFR Part 761.
 - b. The requirement to investigate the mechanical equipment room and/or associated stairwell façade in the event of repairs, renovations, and/or demolition shall be memorialized on a deed notation (see Condition 21).
2. Harvard shall conduct on-site activities in accordance with the conditions of this Approval and with the Notification.
3. In the event that the cleanup plan described in the Notification differs from the conditions specified in this Approval, the conditions of this Approval shall govern.
4. The terms and abbreviations used herein shall have the meanings as defined in 40 CFR § 761.3 unless otherwise defined within this Approval.
5. Harvard must comply with all applicable federal, state and local regulations in the storage, handling, and disposal of all PCB wastes, including PCBs, PCB Items and decontamination wastes generated under this Approval. In the event of a new spill during response actions, Harvard shall contact EPA within 24 hours for direction on PCB cleanup and sampling requirements.

6. Harvard is responsible for the actions of all officers, employees, agents, contractors, subcontractors, and others who are involved in activities conducted under this Approval. If at any time Harvard has or receives information indicating that Harvard or any other person has failed, or may have failed, to comply with any provision of this Approval, it must report the information to EPA in writing within 24 hours of having or receiving the information.
7. This Approval does not constitute a determination by EPA that the transporters or disposal facilities selected by Harvard are authorized to conduct the activities set forth in the Notification. Harvard is responsible for ensuring that its selected transporters and disposal facilities are authorized to conduct these activities in accordance with all applicable federal, state and local statutes and regulations.
8. This Approval does not: 1) waive or compromise EPA's enforcement and regulatory authority; 2) release Harvard from compliance with any applicable requirements of federal, state or local law; or 3) release Harvard from liability for, or otherwise resolve, any violations of federal, state or local law.
9. Failure to comply with the Approval conditions specified herein shall constitute a violation of the requirement in § 761.50(a) to store or dispose of PCB waste in accordance with 40 CFR Part 761 Subpart D.

NOTIFICATION AND CERTIFICATION CONDITIONS

10. This Approval may be revoked if the EPA does not receive written notification from Harvard of its acceptance of the conditions of this Approval within 10 business days of receipt.
11. Harvard shall submit the following information for EPA review and/or approval:
 - a. a certification signed by its selected abatement contractor, stating that the contractor(s) has read and understands the Notification, and agrees to abide by the conditions specified in this Approval;
 - b. a contractor work plan, prepared and submitted by the selected abatement contractor(s) describing the containment and air monitoring that will be employed during abatement activities. This work plan should also include information on how and where wastes will be stored and disposed of, and on how field equipment will be decontaminated; and,
 - c. a certification signed by the selected analytical laboratory, stating that the laboratory has read and understands the extraction and analytical method requirements and quality assurance requirements specified in the Notification and in this Approval.

DECONTAMINATION AND DISPOSAL CONDITIONS

12. To the maximum extent practical, engineering controls, such as barriers, and removal techniques, such as the use of HEPA ventilated tools, shall be utilized during removal processes. In addition, to the maximum extent possible, disposable equipment and materials, including PPE, will be used to reduce the amount of decontamination necessary.
13. All visible residues of PCB-contaminated caulk (i.e., *PCB bulk product waste*) shall be removed as described in the Notification.
 - a. The cleanup standard for *porous surfaces* remaining in-place shall be less than or equal to (\leq) 25 parts per million (ppm).
 - i) Verification sampling for decontaminated *porous surfaces* shall be performed on a bulk basis (i.e., mg/kg) and reported on a dry weight analysis. Verification sampling for *porous surfaces* shall be conducted in accordance with the EPA Region 1 *Standard Operating Procedure for Sampling Porous Surfaces for Polychlorinated Biphenyls (PCBs) Revision 4, May 5, 2011*, at a maximum depth interval of 0.5 inches.
 - ii) Verification sampling shall be conducted at the following frequency:
 - (1) Area 1- one sample for each inner and outer wall (nine (9) samples total);
 - (2) Area 2- one sample per joint for the first three joints and one sample every third joint, thereafter (eight (8) samples total); and,
 - (3) Area 3- one sample per louver (one (1) sample total).
 - b. Chemical extraction for PCBs shall be conducted using Method 3500B/3540C of SW-846; and, chemical analysis for PCBs shall be conducted using Method 8082 of SW-846, unless another extraction/analytical method(s) is validated according to Subpart Q.
 - c. In the event that the ≤ 25 ppm cleanup standard for *porous surfaces* cannot be met the following contingency shall be implemented:
 - i) *Porous surfaces* in direct contact with PCB caulk shall be encapsulated using an epoxy coating;

- ii) Wipe sampling of the encapsulated *porous surfaces* shall be performed on a surface area basis by the standard wipe test as specified in 40 CFR § 761.123 (i.e. $\mu\text{g}/100\text{ cm}^2$). Chemical extraction for PCBs shall be conducted using Method 3500B/3540C of SW-846 and chemical analysis for PCBs shall be conducted using Method 8082 of SW-846, unless another method(s) is validated according to Subpart Q. The laboratory reporting limit shall be $\leq 1\text{ }\mu\text{g}/100\text{ cm}^2$; and,
 - iii) Harvard shall submit a monitoring and maintenance implementation plan (MMIP) to monitor the long-term effectiveness of the encapsulant. (see Condition 18).
14. PCB waste (at any concentration) generated as a result of the activities described in the Notification, excluding any decontaminated materials, shall be marked in accordance with 40 CFR § 761.40; stored in a manner consistent with 40 CFR § 761.65; and, disposed of in accordance with 40 CFR § 761.61 or § 761.62, unless otherwise specified below.
- a. Decontamination wastes and residues shall be disposed of in accordance with 40 CFR § 761.79(g)(6).
 - b. Moveable equipment, tools, and sampling equipment shall be decontaminated in accordance with either 40 CFR § 761.79(b)(3)(i)(A), § 761.79(b)(3)(ii)(A), or § 761.79(c)(2).
 - c. PCB-contaminated water generated during decontamination shall be decontaminated in accordance with 40 CFR § 761.79(b)(1) or disposed of under § 761.60.

INSPECTION, MODIFICATION AND REVOCATION CONDITIONS

15. Harvard shall allow any authorized representative of the Administrator of the EPA to inspect the Site and to inspect records and take samples as may be necessary to determine compliance with the PCB regulations and this Approval. Any refusal by Harvard to allow such an inspection (as authorized by Section 11 of TSCA) shall be grounds for revocation of this Approval.
16. Any proposed modification(s) in the plan, specifications, or information in the Notification must be submitted to EPA no less than 14 calendar days prior to the proposed implementation of the change. Such proposed modifications will be subject to the procedures of 40 CFR § 761.61(a)(3)(ii). If such modification involves a change in the use of the Site which results in exposures not considered in the Notification, the EPA may revoke, suspend, and/or modify this Approval upon finding that this cleanup and disposal action may pose an unreasonable risk of injury to health or the environment due to the change in use. EPA may take similar action if the EPA does not receive requested information needed from Harvard to make a determination regarding potential risk.

17. Any misrepresentation or omission of any material fact in the Notification or in any records or reports may result in the EPA's revocation, suspension and/or modification of the Approval, in addition to any other legal or equitable relief or remedy the EPA may choose to pursue.
18. Within 60 days of completion of the work authorized under this Approval, Harvard shall submit for EPA's review and approval, a detailed MMIP for the surface encapsulants. Harvard shall incorporate any changes to the MMIP required by EPA.
 - a. The MMIP shall include: a description of the activities that will be conducted, including inspection criteria, frequency, and routine maintenance activities; sampling protocols, sampling frequency, and analytical criteria; and reporting requirements.
 - b. The MMIP shall include a communications component which details how the maintenance and monitoring results will be communicated to the Site users, including building users, other on-site workers, and interested stakeholders.
 - c. The MMIP also shall include a worker training component for maintenance workers or for any person that will be conducting work that could impact the building coatings/barriers.
 - d. Harvard shall submit the results of these long-term monitoring and maintenance activities to EPA. Based on its review of the results, EPA may determine that modification to the MMIP is necessary in order to monitor and/or evaluate the long-term effectiveness of the coatings and/or barriers.
 - e. Activities required under the MMIP shall be conducted until such time that EPA determines, in writing, that such activities are no longer necessary.
 - f. A copy of the MMIP shall be attached to the deed notation (see Condition 21).

RECORDKEEPING AND REPORTING CONDITIONS

19. Harvard shall prepare and maintain all records and documents required by 40 CFR Part 761, including but not limited to the records required under Subparts J and K. A written record of the cleanup and disposal and the analytical sampling shall be established and maintained by Harvard in one centralized location, until such time as EPA approves in writing a request for an alternative disposition of such records. All records shall be made available for inspection to authorized representatives of EPA.

20. Harvard shall submit a final report as both a hard copy and electronic version, to the EPA within 60 days of completion of the activities authorized under this Approval. At a minimum, this final report shall include: a short narrative of the project activities with photo-documentation; characterization and confirmation sampling analytical results; copies of the accompanying analytical chains of custody; field and laboratory quality control/quality assurance checks; an estimate of the quantity of PCB waste disposed of; copies of manifests and bills of lading; and copies of certificates of disposal or similar certifications issued by the disposer.
21. Within 60 days of completion of the cleanup activities described in the Notification and authorized by this Approval, and as required under §761.61(a)(8)(i)(B), Harvard shall submit to EPA a certification, signed by an approving official, that it has recorded the notation on the deed as required under §761.61(a)(8)(i)(A). A copy of the notation on the deed must also be submitted.
 - a. In the event that Harvard is able to achieve a PCB cleanup standard of less than (<) 1 ppm at the Site, the deed notation and certification and MMIP (Condition 18) requirements shall not apply.
22. As required under Condition 18 of this Approval, Harvard shall submit the results of the long-term monitoring and maintenance activities to EPA as specified in the final MMIP to be approved by EPA. In the event that Harvard is able to achieve a PCB cleanup standard of ≤ 25 ppm at the Site, the MMIP requirement shall not apply.
23. Required submittals shall be mailed to:

Kimberly N. Tisa, PCB Coordinator
United States Environmental Protection Agency
5 Post Office Square, Suite 100 – (OSRR07-2)
Boston, Massachusetts 02109-3912
Telephone: (617) 918-1527
Facsimile: (617) 918-0527
24. No record, report or communication required under this Approval shall qualify as a self-audit or voluntary disclosure under EPA audit, self-disclosure or penalty policies.

END OF ATTACHMENT 1

APPENDIX B: LABORATORY ANALYTICAL REPORTS

April 17, 2014

Amy Martin
Woodard & Curran - Andover, MA
40 Shattuck Road., Suite 110
Andover, MA 01810

Project Location: William James Hall - Harvard
Client Job Number:
Project Number: 226574
Laboratory Work Order Number: 14D0409

Enclosed are results of analyses for samples received by the laboratory on April 10, 2014. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Meghan E. Kelley
Project Manager

Woodard & Curran - Andover, MA
40 Shattuck Road., Suite 110
Andover, MA 01810
ATTN: Amy Martin

REPORT DATE: 4/17/2014

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 226574

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 14D0409

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: William James Hall - Harvard

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
WJH-VBC-030	14D0409-01	Concrete		SW-846 8082A	
WJH-VBC-031	14D0409-02	Concrete		SW-846 8082A	
WJH-VBC-032	14D0409-03	Concrete		SW-846 8082A	
WJH-VBC-033	14D0409-04	Concrete		SW-846 8082A	

CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

SW-846 8082A

Qualifications:

Surrogate recovery is outside of control limits. Data validation is not affected since all results are less than the reporting limit and bias is on the high side.

Analyte & Samples(s) Qualified:

Decachlorobiphenyl, Decachlorobiphenyl [2C]

14D0409-02[WJH-VBC-031]

The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.

I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.



Daren J. Damboragian
Laboratory Manager

Project Location: William James Hall - Harvard

Sample Description:

Work Order: 14D0409

Date Received: 4/10/2014

Field Sample #: WJH-VBC-030

Sampled: 4/10/2014 07:15

Sample ID: 14D0409-01

Sample Matrix: Concrete

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.098	mg/Kg	1		SW-846 8082A	4/11/14	4/15/14 2:23	MJC
Aroclor-1221 [1]	ND	0.098	mg/Kg	1		SW-846 8082A	4/11/14	4/15/14 2:23	MJC
Aroclor-1232 [1]	ND	0.098	mg/Kg	1		SW-846 8082A	4/11/14	4/15/14 2:23	MJC
Aroclor-1242 [1]	ND	0.098	mg/Kg	1		SW-846 8082A	4/11/14	4/15/14 2:23	MJC
Aroclor-1248 [1]	ND	0.098	mg/Kg	1		SW-846 8082A	4/11/14	4/15/14 2:23	MJC
Aroclor-1254 [1]	ND	0.098	mg/Kg	1		SW-846 8082A	4/11/14	4/15/14 2:23	MJC
Aroclor-1260 [1]	ND	0.098	mg/Kg	1		SW-846 8082A	4/11/14	4/15/14 2:23	MJC
Aroclor-1262 [1]	ND	0.098	mg/Kg	1		SW-846 8082A	4/11/14	4/15/14 2:23	MJC
Aroclor-1268 [1]	ND	0.098	mg/Kg	1		SW-846 8082A	4/11/14	4/15/14 2:23	MJC
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	95.1	30-150						4/15/14 2:23	
Decachlorobiphenyl [2]	92.9	30-150						4/15/14 2:23	
Tetrachloro-m-xylene [1]	97.6	30-150						4/15/14 2:23	
Tetrachloro-m-xylene [2]	103	30-150						4/15/14 2:23	

Project Location: William James Hall - Harvard

Sample Description:

Work Order: 14D0409

Date Received: 4/10/2014

Field Sample #: WJH-VBC-031

Sampled: 4/10/2014 07:20

Sample ID: 14D0409-02

Sample Matrix: Concrete

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.098	mg/Kg	1		SW-846 8082A	4/11/14	4/15/14 2:36	MJC
Aroclor-1221 [1]	ND	0.098	mg/Kg	1		SW-846 8082A	4/11/14	4/15/14 2:36	MJC
Aroclor-1232 [1]	ND	0.098	mg/Kg	1		SW-846 8082A	4/11/14	4/15/14 2:36	MJC
Aroclor-1242 [1]	ND	0.098	mg/Kg	1		SW-846 8082A	4/11/14	4/15/14 2:36	MJC
Aroclor-1248 [1]	ND	0.098	mg/Kg	1		SW-846 8082A	4/11/14	4/15/14 2:36	MJC
Aroclor-1254 [1]	ND	0.098	mg/Kg	1		SW-846 8082A	4/11/14	4/15/14 2:36	MJC
Aroclor-1260 [1]	ND	0.098	mg/Kg	1		SW-846 8082A	4/11/14	4/15/14 2:36	MJC
Aroclor-1262 [1]	ND	0.098	mg/Kg	1		SW-846 8082A	4/11/14	4/15/14 2:36	MJC
Aroclor-1268 [1]	ND	0.098	mg/Kg	1		SW-846 8082A	4/11/14	4/15/14 2:36	MJC
Surrogates	% Recovery		Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]	156	*	30-150		S-17			4/15/14 2:36	
Decachlorobiphenyl [2]	160	*	30-150		S-17			4/15/14 2:36	
Tetrachloro-m-xylene [1]	131		30-150					4/15/14 2:36	
Tetrachloro-m-xylene [2]	142		30-150					4/15/14 2:36	

Project Location: William James Hall - Harvard

Sample Description:

Work Order: 14D0409

Date Received: 4/10/2014

Field Sample #: WJH-VBC-032

Sampled: 4/10/2014 07:25

Sample ID: 14D0409-03

Sample Matrix: Concrete

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.095	mg/Kg	1		SW-846 8082A	4/11/14	4/15/14 2:49	MJC
Aroclor-1221 [1]	ND	0.095	mg/Kg	1		SW-846 8082A	4/11/14	4/15/14 2:49	MJC
Aroclor-1232 [1]	ND	0.095	mg/Kg	1		SW-846 8082A	4/11/14	4/15/14 2:49	MJC
Aroclor-1242 [1]	ND	0.095	mg/Kg	1		SW-846 8082A	4/11/14	4/15/14 2:49	MJC
Aroclor-1248 [1]	ND	0.095	mg/Kg	1		SW-846 8082A	4/11/14	4/15/14 2:49	MJC
Aroclor-1254 [1]	ND	0.095	mg/Kg	1		SW-846 8082A	4/11/14	4/15/14 2:49	MJC
Aroclor-1260 [1]	ND	0.095	mg/Kg	1		SW-846 8082A	4/11/14	4/15/14 2:49	MJC
Aroclor-1262 [1]	ND	0.095	mg/Kg	1		SW-846 8082A	4/11/14	4/15/14 2:49	MJC
Aroclor-1268 [1]	ND	0.095	mg/Kg	1		SW-846 8082A	4/11/14	4/15/14 2:49	MJC
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	144	30-150						4/15/14 2:49	
Decachlorobiphenyl [2]	147	30-150						4/15/14 2:49	
Tetrachloro-m-xylene [1]	126	30-150						4/15/14 2:49	
Tetrachloro-m-xylene [2]	136	30-150						4/15/14 2:49	

Project Location: William James Hall - Harvard

Sample Description:

Work Order: 14D0409

Date Received: 4/10/2014

Field Sample #: WJH-VBC-033

Sampled: 4/10/2014 07:40

Sample ID: 14D0409-04

Sample Matrix: Concrete

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.095	mg/Kg	1		SW-846 8082A	4/11/14	4/15/14 11:51	MJC
Aroclor-1221 [1]	ND	0.095	mg/Kg	1		SW-846 8082A	4/11/14	4/15/14 11:51	MJC
Aroclor-1232 [1]	ND	0.095	mg/Kg	1		SW-846 8082A	4/11/14	4/15/14 11:51	MJC
Aroclor-1242 [1]	ND	0.095	mg/Kg	1		SW-846 8082A	4/11/14	4/15/14 11:51	MJC
Aroclor-1248 [1]	ND	0.095	mg/Kg	1		SW-846 8082A	4/11/14	4/15/14 11:51	MJC
Aroclor-1254 [1]	ND	0.095	mg/Kg	1		SW-846 8082A	4/11/14	4/15/14 11:51	MJC
Aroclor-1260 [1]	ND	0.095	mg/Kg	1		SW-846 8082A	4/11/14	4/15/14 11:51	MJC
Aroclor-1262 [1]	ND	0.095	mg/Kg	1		SW-846 8082A	4/11/14	4/15/14 11:51	MJC
Aroclor-1268 [1]	ND	0.095	mg/Kg	1		SW-846 8082A	4/11/14	4/15/14 11:51	MJC
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	121	30-150						4/15/14 11:51	
Decachlorobiphenyl [2]	120	30-150						4/15/14 11:51	
Tetrachloro-m-xylene [1]	101	30-150						4/15/14 11:51	
Tetrachloro-m-xylene [2]	109	30-150						4/15/14 11:51	

Sample Extraction Data

Prep Method: SW-846 3540C-SW-846 8082A

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
14D0409-01 [WJH-VBC-030]	B093641	2.05	10.0	04/11/14
14D0409-02 [WJH-VBC-031]	B093641	2.04	10.0	04/11/14
14D0409-03 [WJH-VBC-032]	B093641	2.10	10.0	04/11/14
14D0409-04 [WJH-VBC-033]	B093641	2.10	10.0	04/11/14

QUALITY CONTROL
Polychlorinated Biphenyls with 3540 Soxhlet Extraction - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

Batch B093641 - SW-846 3540C
Blank (B093641-BLK1)

Prepared: 04/11/14 Analyzed: 04/14/14

Aroclor-1016	ND	0.10	mg/Kg							
Aroclor-1016 [2C]	ND	0.10	mg/Kg							
Aroclor-1221	ND	0.10	mg/Kg							
Aroclor-1221 [2C]	ND	0.10	mg/Kg							
Aroclor-1232	ND	0.10	mg/Kg							
Aroclor-1232 [2C]	ND	0.10	mg/Kg							
Aroclor-1242	ND	0.10	mg/Kg							
Aroclor-1242 [2C]	ND	0.10	mg/Kg							
Aroclor-1248	ND	0.10	mg/Kg							
Aroclor-1248 [2C]	ND	0.10	mg/Kg							
Aroclor-1254	ND	0.10	mg/Kg							
Aroclor-1254 [2C]	ND	0.10	mg/Kg							
Aroclor-1260	ND	0.10	mg/Kg							
Aroclor-1260 [2C]	ND	0.10	mg/Kg							
Aroclor-1262	ND	0.10	mg/Kg							
Aroclor-1262 [2C]	ND	0.10	mg/Kg							
Aroclor-1268	ND	0.10	mg/Kg							
Aroclor-1268 [2C]	ND	0.10	mg/Kg							
Surrogate: Decachlorobiphenyl	0.881		mg/Kg	1.00		88.1	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.870		mg/Kg	1.00		87.0	30-150			
Surrogate: Tetrachloro-m-xylene	0.743		mg/Kg	1.00		74.3	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.778		mg/Kg	1.00		77.8	30-150			

LCS (B093641-BS1)

Prepared: 04/11/14 Analyzed: 04/14/14

Aroclor-1016	0.21	0.10	mg/Kg	0.250		83.9	40-140			
Aroclor-1016 [2C]	0.22	0.10	mg/Kg	0.250		86.2	40-140			
Aroclor-1260	0.20	0.10	mg/Kg	0.250		80.0	40-140			
Aroclor-1260 [2C]	0.21	0.10	mg/Kg	0.250		85.6	40-140			
Surrogate: Decachlorobiphenyl	0.855		mg/Kg	1.00		85.5	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.842		mg/Kg	1.00		84.2	30-150			
Surrogate: Tetrachloro-m-xylene	0.744		mg/Kg	1.00		74.4	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.786		mg/Kg	1.00		78.6	30-150			

LCS Dup (B093641-BSD1)

Prepared: 04/11/14 Analyzed: 04/14/14

Aroclor-1016	0.21	0.10	mg/Kg	0.250		85.2	40-140	1.53	30	
Aroclor-1016 [2C]	0.22	0.10	mg/Kg	0.250		88.7	40-140	2.82	30	
Aroclor-1260	0.20	0.10	mg/Kg	0.250		79.6	40-140	0.489	30	
Aroclor-1260 [2C]	0.21	0.10	mg/Kg	0.250		84.7	40-140	1.08	30	
Surrogate: Decachlorobiphenyl	0.810		mg/Kg	1.00		81.0	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.798		mg/Kg	1.00		79.8	30-150			
Surrogate: Tetrachloro-m-xylene	0.707		mg/Kg	1.00		70.7	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.752		mg/Kg	1.00		75.2	30-150			

FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
	No results have been blank subtracted unless specified in the case narrative section.
S-17	Surrogate recovery is outside of control limits. Data validation is not affected since all results are less than the reporting limit and bias is on the high side.

CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
<i>SW-846 8082A in Product/Solid</i>	
Aroclor-1016	CT,NH,NY,ME,NC,VA,NJ
Aroclor-1016 [2C]	CT,NH,NY,ME,NC,VA,NJ
Aroclor-1221	CT,NH,NY,ME,NC,VA,NJ
Aroclor-1221 [2C]	CT,NH,NY,ME,NC,VA,NJ
Aroclor-1232	CT,NH,NY,ME,NC,VA,NJ
Aroclor-1232 [2C]	CT,NH,NY,ME,NC,VA,NJ
Aroclor-1242	CT,NH,NY,ME,NC,VA,NJ
Aroclor-1242 [2C]	CT,NH,NY,ME,NC,VA,NJ
Aroclor-1248	CT,NH,NY,ME,NC,VA,NJ
Aroclor-1248 [2C]	CT,NH,NY,ME,NC,VA,NJ
Aroclor-1254	CT,NH,NY,ME,NC,VA,NJ
Aroclor-1254 [2C]	CT,NH,NY,ME,NC,VA,NJ
Aroclor-1260	CT,NH,NY,ME,NC,VA,NJ
Aroclor-1260 [2C]	CT,NH,NY,ME,NC,VA,NJ

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC	100033	02/1/2016
MA	Massachusetts DEP	M-MA100	06/30/2014
CT	Connecticut Department of Public Health	PH-0567	09/30/2015
NY	New York State Department of Health	10899 NELAP	04/1/2015
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2015
RI	Rhode Island Department of Health	LAO00112	12/30/2014
NC	North Carolina Div. of Water Quality	652	12/31/2014
NJ	New Jersey DEP	MA007 NELAP	06/30/2014
FL	Florida Department of Health	E871027 NELAP	06/30/2014
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2014
WA	State of Washington Department of Ecology	C2065	02/23/2015
ME	State of Maine	2011028	06/9/2015
VA	Commonwealth of Virginia	460217	12/14/2014
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2014



Contest

ANALYTICAL LABORATORY

Phone: 413-525-2332
 Fax: 413-525-6405
 Email: info@contestlabs.com
 www.contestlabs.com

CHAIN OF CUSTODY RECORD

39 Spruce Street
 East Longmeadow, MA 01028

Rev 04.05.12

Company Name: Woodard & Curran

Telephone: _____

Address: 40 Shattuck Rd

Project # 206574

Attention: Andrew MA

Client PO# _____

Project Location: William James Hall - Harvard

DATA DELIVERY (check all that apply)
☐ FAX ☒ EMAIL ☐ WEBSITE

Sampled By: JM Russell

Fax # None
 Email: amr@contestlabs.com

Project Proposal Provided? (for billing purposes)
☐ Yes ☐ No

Con-Test Lab ID _____

Client Sample ID / Description _____

Collection _____

Beginning Date/Time _____

Ending Date/Time _____

WSH-VBC-030

4/10/14

0715

Composite _____

Grab _____

WSH-VBC-031

4/10/14

0720

Composite _____

Grab _____

WSH-VBC-032

4/10/14

0725

Composite _____

Grab _____

WSH-VBC-033

4/10/14

0740

Composite _____

Grab _____

Comments: PCBs 8082 Soxhlet

Please use the following codes to let Con-Test know if a specific sample may be high in concentration in Matrix/Conc. Code Box:
 H - High; M - Medium; L - Low; C - Clean; U - Unknown

Matrix Code:
 GW = groundwater
 WW = wastewater
 DW = drinking water
 A = air
 S = soil/solid
 SL = sludge
 O = other

Relinquished by (signature) _____

Date/Time: 4/10/14

Turnaround ☐ 7-Day ☐ 10-Day ☒ Other Soxhlet

Detection Limit Requirements _____

Is your project MCP or RCP? ☒ MCP Form Required ☐ RCP Form Required

Received by (signature) _____

Date/Time: 4/10/14

MA State DW Form Required ☐ PWSID # _____

Connecticut _____

MA State DW Form Required ☐ PWSID # _____

Relinquished by (signature) _____

Date/Time: 4/10/14

MA State DW Form Required ☐ PWSID # _____

Connecticut _____

MA State DW Form Required ☐ PWSID # _____

Received by (signature) _____

Date/Time: 4/10/14

MA State DW Form Required ☐ PWSID # _____

Connecticut _____

MA State DW Form Required ☐ PWSID # _____

Received by (signature) _____

Date/Time: 4/10/14

MA State DW Form Required ☐ PWSID # _____

Connecticut _____

MA State DW Form Required ☐ PWSID # _____

39 Spruce St.
East Longmeadow, MA. 01028
P: 413-525-2332
F: 413-525-6405
www.contestlabs.com



Page 1 of 2

Sample Receipt Checklist

CLIENT NAME: Woodward + Curran RECEIVED BY: MT DATE: 9/10/14

1) Was the chain(s) of custody relinquished and signed? Yes No No CoC Included

2) Does the chain agree with the samples? Yes No

If not, explain:

3) Are all the samples in good condition? Yes No

If not, explain:

4) How were the samples received:

On Ice ☒ Direct from Sampling ☐ Ambient ☐ In Cooler(s) ☒

Were the samples received in Temperature Compliance of (2-6°C)? Yes No N/A

Temperature °C by Temp blank _____ Temperature °C by Temp gun 4.9°C

5) Are there Dissolved samples for the lab to filter? Yes No

Who was notified _____ Date _____ Time _____

6) Are there any RUSH or SHORT HOLDING TIME samples? Yes No

Who was notified _____ Date _____ Time _____

7) Location where samples are stored:

19

Permission to subcontract samples? Yes No
(Walk-in clients only) if not already approved
Client Signature: _____

8) Do all samples have the proper Acid pH: Yes No N/A

9) Do all samples have the proper Base pH: Yes No N/A

10) Was the PC notified of any discrepancies with the CoC vs the samples: Yes No N/A

Containers received at Con-Test

	# of containers			# of containers
1 Liter Amber			8 oz amber/clear jar	
500 mL Amber			4 oz amber/clear jar	<u>4 A</u>
250 mL Amber (8oz amber)			2 oz amber/clear jar	
1 Liter Plastic			Plastic Bag / Ziploc	
500 mL Plastic			SOC Kit	
250 mL plastic			Non-ConTest Container	
40 mL Vial - type listed below			Perchlorate Kit	
Colisure / bacteria bottle			Flashpoint bottle	
Dissolved Oxygen bottle			Other glass jar	
Encore			Other	

Laboratory Comments:

40 mL vials: # HCl _____ # Methanol _____

Doc# 277 # Bisulfate _____ # DI Water _____

Rev. 4 August 2013 # Thiosulfate _____ Unpreserved _____

Time and Date Frozen:

Login Sample Receipt Checklist**(Rejection Criteria Listing - Using Sample Acceptance Policy)****Any False statement will be brought to the attention of Client**

Question	Answer (True/False)		Comment
	T/F/NA		
1) The cooler's custody seal, if present, is intact.	t		
2) The cooler or samples do not appear to have been compromised or tampered with.	t		
3) Samples were received on ice.	T		
4) Cooler Temperature is acceptable.	t		
5) Cooler Temperature is recorded.	T		
6) COC is filled out in ink and legible.	t		
7) COC is filled out with all pertinent information.	t		
8) Field Sampler's name present on COC.	T		
9) There are no discrepancies between the sample IDs on the container and the COC.	T		
10) Samples are received within Holding Time.	T		
11) Sample containers have legible labels.	T		
12) Containers are not broken or leaking.	T		
13) Air Cassettes are not broken/open.	T		
14) Sample collection date/times are provided.	t		
15) Appropriate sample containers are used.	t		
16) Proper collection media used.	t		
17) No headspace sample bottles are completely filled.	NA		
18) There is sufficient volume for all requested analyses, including any requested MS/MSDs.	t		
19) Trip blanks provided if applicable.	T		
20) VOA sample vials do not have head space or bubble is <6mm (1/4") in diameter.	NA		
21) Samples do not require splitting or compositing.	t		

Doc #277 Rev. 4 August 2013

Who notified of False statements?**Log-In Technician Initials:****Date/Time:****Date/Time:**

MJ

4/10/14 17:15

MADEP MCP Analytical Method Report Certification Form

Laboratory Name: Con-Test Analytical Laboratory

Project #: 14D0409

Project Location: William James Hall - Harvard

RTN:

This Form provides certifications for the following data set: [list Laboratory Sample ID Number(s)]

14D0409-01 thru 14D0409-04

Matrices: Product/Solid

CAM Protocol (check all that below)

8260 VOC CAM II A ()	7470/7471 Hg CAM IIIB ()	MassDEP VPH CAM IV A ()	8081 Pesticides CAM V B ()	7196 Hex Cr CAM VI B ()	MassDEP APH CAM IX A ()
8270 SVOC CAM II B ()	7010 Metals CAM III C ()	MassDEP EPH CAM IV A ()	8151 Herbicides CAM V C ()	8330 Explosives CAM VIII A ()	TO-15 VOC CAM IX B ()
6010 Metals CAM III A ()	6020 Metals CAM III D ()	8082 PCB CAM V A (X)	9014 Total Cyanide/PAC CAM VI A ()	6860 Perchlorate CAM VIII B ()	

Affirmative response to Questions A through F is required for "Presumptive Certainty" status

A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹
E a	VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications).	<input type="checkbox"/> Yes <input type="checkbox"/> No ¹
E b	APH and TO-15 Methods only: Was the complete analyte list reported for each method?	<input type="checkbox"/> Yes <input type="checkbox"/> No ¹
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all No responses to Questions A through E)?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹

A response to questions G, H and I below is required for "Presumptive Certainty" status

G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹
----------	---	--

Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.

H	Were all QC performance standards specified in the CAM protocol(s) achieved?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No ¹
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹

¹ All Negative responses must be addressed in an attached Environmental Laboratory case narrative.

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: 

Position: Laboratory Manager

Printed Name: Daren J. Damboragian

Date: 04/17/14

April 21, 2014

Amy Martin
Woodard & Curran - Andover, MA
40 Shattuck Road., Suite 110
Andover, MA 01810

Project Location: William James Hall - Harvard
Client Job Number:
Project Number: 226574
Laboratory Work Order Number: 14D0509

Enclosed are results of analyses for samples received by the laboratory on April 14, 2014. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Meghan E. Kelley
Project Manager

Woodard & Curran - Andover, MA
40 Shattuck Road., Suite 110
Andover, MA 01810
ATTN: Amy Martin

REPORT DATE: 4/21/2014

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 226574

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 14D0509

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: William James Hall - Harvard

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
WJH-VBC-034	14D0509-01	Concrete		SW-846 8082A	
WJH-VBC-035	14D0509-02	Concrete		SW-846 8082A	
WJH-VBC-036	14D0509-03	Concrete		SW-846 8082A	
WJH-VBC-037	14D0509-04	Concrete		SW-846 8082A	
WJH-VBC-038	14D0509-05	Concrete		SW-846 8082A	

CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

SW-846 8082A

Qualifications:

The surrogate recovery for this sample is not available due to sample dilution below the surrogate reporting limit required from high analyte concentration and/or matrix interferences.

Analyte & Samples(s) Qualified:

Decachlorobiphenyl, Decachlorobiphenyl [2C], Tetrachloro-m-xylene, Tetrachloro-m-xylene [2C]

14D0509-05[WJH-VBC-038]

Surrogate recovery is outside of control limits on confirmatory column, but within control limits on primary column. Data validation is not affected.


Analyte & Samples(s) Qualified:

Decachlorobiphenyl [2C]

14D0509-03[WJH-VBC-036]

The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.

I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.



Michael A. Erickson
Laboratory Director

Project Location: William James Hall - Harvard

Sample Description:

Work Order: 14D0509

Date Received: 4/14/2014

Field Sample #: WJH-VBC-034

Sampled: 4/14/2014 07:30

Sample ID: 14D0509-01

Sample Matrix: Concrete

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.098	mg/Kg	1		SW-846 8082A	4/15/14	4/17/14 2:33	JMB
Aroclor-1221 [1]	ND	0.098	mg/Kg	1		SW-846 8082A	4/15/14	4/17/14 2:33	JMB
Aroclor-1232 [1]	ND	0.098	mg/Kg	1		SW-846 8082A	4/15/14	4/17/14 2:33	JMB
Aroclor-1242 [1]	ND	0.098	mg/Kg	1		SW-846 8082A	4/15/14	4/17/14 2:33	JMB
Aroclor-1248 [1]	ND	0.098	mg/Kg	1		SW-846 8082A	4/15/14	4/17/14 2:33	JMB
Aroclor-1254 [1]	ND	0.098	mg/Kg	1		SW-846 8082A	4/15/14	4/17/14 2:33	JMB
Aroclor-1260 [1]	ND	0.098	mg/Kg	1		SW-846 8082A	4/15/14	4/17/14 2:33	JMB
Aroclor-1262 [1]	ND	0.098	mg/Kg	1		SW-846 8082A	4/15/14	4/17/14 2:33	JMB
Aroclor-1268 [1]	ND	0.098	mg/Kg	1		SW-846 8082A	4/15/14	4/17/14 2:33	JMB
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	41.5	30-150						4/17/14 2:33	
Decachlorobiphenyl [2]	39.5	30-150						4/17/14 2:33	
Tetrachloro-m-xylene [1]	43.5	30-150						4/17/14 2:33	
Tetrachloro-m-xylene [2]	45.6	30-150						4/17/14 2:33	

Project Location: William James Hall - Harvard

Sample Description:

Work Order: 14D0509

Date Received: 4/14/2014

Field Sample #: WJH-VBC-035

Sampled: 4/14/2014 07:35

Sample ID: 14D0509-02

Sample Matrix: Concrete

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.10	mg/Kg	1		SW-846 8082A	4/15/14	4/17/14 2:46	JMB
Aroclor-1221 [1]	ND	0.10	mg/Kg	1		SW-846 8082A	4/15/14	4/17/14 2:46	JMB
Aroclor-1232 [1]	ND	0.10	mg/Kg	1		SW-846 8082A	4/15/14	4/17/14 2:46	JMB
Aroclor-1242 [1]	ND	0.10	mg/Kg	1		SW-846 8082A	4/15/14	4/17/14 2:46	JMB
Aroclor-1248 [1]	ND	0.10	mg/Kg	1		SW-846 8082A	4/15/14	4/17/14 2:46	JMB
Aroclor-1254 [1]	ND	0.10	mg/Kg	1		SW-846 8082A	4/15/14	4/17/14 2:46	JMB
Aroclor-1260 [1]	ND	0.10	mg/Kg	1		SW-846 8082A	4/15/14	4/17/14 2:46	JMB
Aroclor-1262 [1]	ND	0.10	mg/Kg	1		SW-846 8082A	4/15/14	4/17/14 2:46	JMB
Aroclor-1268 [1]	ND	0.10	mg/Kg	1		SW-846 8082A	4/15/14	4/17/14 2:46	JMB
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	65.8	30-150						4/17/14 2:46	
Decachlorobiphenyl [2]	64.0	30-150						4/17/14 2:46	
Tetrachloro-m-xylene [1]	60.4	30-150						4/17/14 2:46	
Tetrachloro-m-xylene [2]	64.6	30-150						4/17/14 2:46	

Project Location: William James Hall - Harvard

Sample Description:

Work Order: 14D0509

Date Received: 4/14/2014

Field Sample #: WJH-VBC-036

Sampled: 4/14/2014 07:45

Sample ID: 14D0509-03

Sample Matrix: Concrete

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date	Date/Time	Analyst
							Prepared	Analyzed	
Aroclor-1016 [1]	ND	0.092	mg/Kg	1		SW-846 8082A	4/15/14	4/17/14 2:59	JMB
Aroclor-1221 [1]	ND	0.092	mg/Kg	1		SW-846 8082A	4/15/14	4/17/14 2:59	JMB
Aroclor-1232 [1]	ND	0.092	mg/Kg	1		SW-846 8082A	4/15/14	4/17/14 2:59	JMB
Aroclor-1242 [1]	ND	0.092	mg/Kg	1		SW-846 8082A	4/15/14	4/17/14 2:59	JMB
Aroclor-1248 [1]	ND	0.092	mg/Kg	1		SW-846 8082A	4/15/14	4/17/14 2:59	JMB
Aroclor-1254 [1]	ND	0.092	mg/Kg	1		SW-846 8082A	4/15/14	4/17/14 2:59	JMB
Aroclor-1260 [1]	ND	0.092	mg/Kg	1		SW-846 8082A	4/15/14	4/17/14 2:59	JMB
Aroclor-1262 [1]	ND	0.092	mg/Kg	1		SW-846 8082A	4/15/14	4/17/14 2:59	JMB
Aroclor-1268 [1]	ND	0.092	mg/Kg	1		SW-846 8082A	4/15/14	4/17/14 2:59	JMB
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]		31.9	30-150				4/17/14 2:59		
Decachlorobiphenyl [2]		29.9	*	30-150	S-12		4/17/14 2:59		
Tetrachloro-m-xylene [1]		35.4	30-150				4/17/14 2:59		
Tetrachloro-m-xylene [2]		37.0	30-150				4/17/14 2:59		

Project Location: William James Hall - Harvard

Sample Description:

Work Order: 14D0509

Date Received: 4/14/2014

Field Sample #: WJH-VBC-037

Sampled: 4/14/2014 08:00

Sample ID: 14D0509-04

Sample Matrix: Concrete

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.096	mg/Kg	1		SW-846 8082A	4/15/14	4/17/14 3:12	JMB
Aroclor-1221 [1]	ND	0.096	mg/Kg	1		SW-846 8082A	4/15/14	4/17/14 3:12	JMB
Aroclor-1232 [1]	ND	0.096	mg/Kg	1		SW-846 8082A	4/15/14	4/17/14 3:12	JMB
Aroclor-1242 [1]	ND	0.096	mg/Kg	1		SW-846 8082A	4/15/14	4/17/14 3:12	JMB
Aroclor-1248 [1]	ND	0.096	mg/Kg	1		SW-846 8082A	4/15/14	4/17/14 3:12	JMB
Aroclor-1254 [1]	ND	0.096	mg/Kg	1		SW-846 8082A	4/15/14	4/17/14 3:12	JMB
Aroclor-1260 [1]	ND	0.096	mg/Kg	1		SW-846 8082A	4/15/14	4/17/14 3:12	JMB
Aroclor-1262 [1]	ND	0.096	mg/Kg	1		SW-846 8082A	4/15/14	4/17/14 3:12	JMB
Aroclor-1268 [1]	ND	0.096	mg/Kg	1		SW-846 8082A	4/15/14	4/17/14 3:12	JMB
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	99.3	30-150						4/17/14 3:12	
Decachlorobiphenyl [2]	96.6	30-150						4/17/14 3:12	
Tetrachloro-m-xylene [1]	92.8	30-150						4/17/14 3:12	
Tetrachloro-m-xylene [2]	99.5	30-150						4/17/14 3:12	

Project Location: William James Hall - Harvard

Sample Description:

Work Order: 14D0509

Date Received: 4/14/2014

Field Sample #: WJH-VBC-038

Sampled: 4/14/2014 08:10

Sample ID: 14D0509-05

Sample Matrix: Concrete

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	20	mg/Kg	200		SW-846 8082A	4/15/14	4/17/14 10:38	JMB
Aroclor-1221 [1]	ND	20	mg/Kg	200		SW-846 8082A	4/15/14	4/17/14 10:38	JMB
Aroclor-1232 [1]	ND	20	mg/Kg	200		SW-846 8082A	4/15/14	4/17/14 10:38	JMB
Aroclor-1242 [1]	ND	20	mg/Kg	200		SW-846 8082A	4/15/14	4/17/14 10:38	JMB
Aroclor-1248 [1]	ND	20	mg/Kg	200		SW-846 8082A	4/15/14	4/17/14 10:38	JMB
Aroclor-1254 [2]	140	20	mg/Kg	200		SW-846 8082A	4/15/14	4/17/14 10:38	JMB
Aroclor-1260 [1]	ND	20	mg/Kg	200		SW-846 8082A	4/15/14	4/17/14 10:38	JMB
Aroclor-1262 [1]	ND	20	mg/Kg	200		SW-846 8082A	4/15/14	4/17/14 10:38	JMB
Aroclor-1268 [1]	ND	20	mg/Kg	200		SW-846 8082A	4/15/14	4/17/14 10:38	JMB
Surrogates	% Recovery	Recovery Limits			Flag/Qual				
Decachlorobiphenyl [1]	*	30-150			S-01			4/17/14 10:38	
Decachlorobiphenyl [2]	*	30-150			S-01			4/17/14 10:38	
Tetrachloro-m-xylene [1]	*	30-150			S-01			4/17/14 10:38	
Tetrachloro-m-xylene [2]	*	30-150			S-01			4/17/14 10:38	

Sample Extraction Data

Prep Method: SW-846 3540C-SW-846 8082A

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
14D0509-01 [WJH-VBC-034]	B093855	2.05	10.0	04/15/14
14D0509-02 [WJH-VBC-035]	B093855	2.01	10.0	04/15/14
14D0509-03 [WJH-VBC-036]	B093855	2.17	10.0	04/15/14
14D0509-04 [WJH-VBC-037]	B093855	2.08	10.0	04/15/14
14D0509-05 [WJH-VBC-038]	B093855	2.03	10.0	04/15/14

QUALITY CONTROL
Polychlorinated Biphenyls with 3540 Soxhlet Extraction - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B093855 - SW-846 3540C
Blank (B093855-BLK1)

Prepared: 04/15/14 Analyzed: 04/17/14

Aroclor-1016	ND	0.10	mg/Kg							
Aroclor-1016 [2C]	ND	0.10	mg/Kg							
Aroclor-1221	ND	0.10	mg/Kg							
Aroclor-1221 [2C]	ND	0.10	mg/Kg							
Aroclor-1232	ND	0.10	mg/Kg							
Aroclor-1232 [2C]	ND	0.10	mg/Kg							
Aroclor-1242	ND	0.10	mg/Kg							
Aroclor-1242 [2C]	ND	0.10	mg/Kg							
Aroclor-1248	ND	0.10	mg/Kg							
Aroclor-1248 [2C]	ND	0.10	mg/Kg							
Aroclor-1254	ND	0.10	mg/Kg							
Aroclor-1254 [2C]	ND	0.10	mg/Kg							
Aroclor-1260	ND	0.10	mg/Kg							
Aroclor-1260 [2C]	ND	0.10	mg/Kg							
Aroclor-1262	ND	0.10	mg/Kg							
Aroclor-1262 [2C]	ND	0.10	mg/Kg							
Aroclor-1268	ND	0.10	mg/Kg							
Aroclor-1268 [2C]	ND	0.10	mg/Kg							
Surrogate: Decachlorobiphenyl	0.841		mg/Kg	1.00		84.1	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.831		mg/Kg	1.00		83.1	30-150			
Surrogate: Tetrachloro-m-xylene	0.764		mg/Kg	1.00		76.4	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.813		mg/Kg	1.00		81.3	30-150			

LCS (B093855-BS1)

Prepared: 04/15/14 Analyzed: 04/17/14

Aroclor-1016	0.20	0.10	mg/Kg	0.250		80.0	40-140			
Aroclor-1016 [2C]	0.22	0.10	mg/Kg	0.250		87.1	40-140			
Aroclor-1260	0.20	0.10	mg/Kg	0.250		79.8	40-140			
Aroclor-1260 [2C]	0.21	0.10	mg/Kg	0.250		84.0	40-140			
Surrogate: Decachlorobiphenyl	0.849		mg/Kg	1.00		84.9	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.832		mg/Kg	1.00		83.2	30-150			
Surrogate: Tetrachloro-m-xylene	0.745		mg/Kg	1.00		74.5	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.796		mg/Kg	1.00		79.6	30-150			

LCS Dup (B093855-BSD1)

Prepared: 04/15/14 Analyzed: 04/17/14

Aroclor-1016	0.21	0.10	mg/Kg	0.250		84.1	40-140	4.97	30	
Aroclor-1016 [2C]	0.22	0.10	mg/Kg	0.250		87.4	40-140	0.353	30	
Aroclor-1260	0.21	0.10	mg/Kg	0.250		82.2	40-140	3.00	30	
Aroclor-1260 [2C]	0.22	0.10	mg/Kg	0.250		86.8	40-140	3.31	30	
Surrogate: Decachlorobiphenyl	0.842		mg/Kg	1.00		84.2	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.827		mg/Kg	1.00		82.7	30-150			
Surrogate: Tetrachloro-m-xylene	0.783		mg/Kg	1.00		78.3	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.833		mg/Kg	1.00		83.3	30-150			

FLAG/QUALIFIER SUMMARY

- * QC result is outside of established limits.
 - † Wide recovery limits established for difficult compound.
 - ‡ Wide RPD limits established for difficult compound.
 - # Data exceeded client recommended or regulatory level
- Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
- No results have been blank subtracted unless specified in the case narrative section.
- S-01 The surrogate recovery for this sample is not available due to sample dilution below the surrogate reporting limit required from high analyte concentration and/or matrix interferences.
- S-12 Surrogate recovery is outside of control limits on confirmatory column, but within control limits on primary column. Data validation is not affected.

CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
<i>SW-846 8082A in Product/Solid</i>	
Aroclor-1016	CT,NH,NY,ME,NC,VA,NJ
Aroclor-1016 [2C]	CT,NH,NY,ME,NC,VA,NJ
Aroclor-1221	CT,NH,NY,ME,NC,VA,NJ
Aroclor-1221 [2C]	CT,NH,NY,ME,NC,VA,NJ
Aroclor-1232	CT,NH,NY,ME,NC,VA,NJ
Aroclor-1232 [2C]	CT,NH,NY,ME,NC,VA,NJ
Aroclor-1242	CT,NH,NY,ME,NC,VA,NJ
Aroclor-1242 [2C]	CT,NH,NY,ME,NC,VA,NJ
Aroclor-1248	CT,NH,NY,ME,NC,VA,NJ
Aroclor-1248 [2C]	CT,NH,NY,ME,NC,VA,NJ
Aroclor-1254	CT,NH,NY,ME,NC,VA,NJ
Aroclor-1254 [2C]	CT,NH,NY,ME,NC,VA,NJ
Aroclor-1260	CT,NH,NY,ME,NC,VA,NJ
Aroclor-1260 [2C]	CT,NH,NY,ME,NC,VA,NJ

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC	100033	02/1/2016
MA	Massachusetts DEP	M-MA100	06/30/2014
CT	Connecticut Department of Public Health	PH-0567	09/30/2015
NY	New York State Department of Health	10899 NELAP	04/1/2015
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2015
RI	Rhode Island Department of Health	LAO00112	12/30/2014
NC	North Carolina Div. of Water Quality	652	12/31/2014
NJ	New Jersey DEP	MA007 NELAP	06/30/2014
FL	Florida Department of Health	E871027 NELAP	06/30/2014
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2014
WA	State of Washington Department of Ecology	C2065	02/23/2015
ME	State of Maine	2011028	06/9/2015
VA	Commonwealth of Virginia	460217	12/14/2014
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2014

Rev 04.05.12

Company Name: Woodward & Curran

Telephone: _____

Address: 40 Chestnut Rd

Project # 226574

Attention: Andrew MA

Client PO# _____

Project Location: Harvard - William James Hall

DATA DELIVERY (check all that apply)
☐ FAX ☒ EMAIL ☐ WEBSITE

Sampled By: Jill Russell

Fax # 978-234-6600
Email: asmart@seasill.com

Project Proposal Provided? (for billing purposes)
☐ Yes ☐ No
proposal date _____

Format: ☒ PDF ☐ EXCEL ☐ GIS
☐ OTHER _____

Con-Test Lab ID (laboratory use only)	Client Sample ID / Description	Collection		Composite	Grab	Matrix		Conc	Code	Date	Time	Analysis Requested	# of Containers	** Preservation	*** Container Code	Dissolved Metals <input type="checkbox"/> Field Filtered <input type="checkbox"/> Lab to Filter	***Cont. Code: A=amber glass G=glass P=plastic ST=sterile V=vial S=summa can T=tedlar bag O=Other	**Preservation I=iced H=HCL M=Methanol N=Nitric Acid S=Sulfuric Acid B=Sodium bisulfate X=Na hydroxide T=Na thiosulfate O=Other
		Beginning Date/Time	Ending Date/Time			Code	Code											
01	WSH-VBC-034	4/11/14	730	X														
02	WSH-VBC-035		735	X														
03	WSH-VBC-036		745	X														
04	WSH-VBC-037		0800	X														
05	WSH-VBC-038	4/11/14	0810	X														

Comments: PCBS 8082 Soxhlet

Please use the following codes to let Con-Test know if a specific sample may be high in concentration in Matrix/Conc. Code Box:

H - High; M - Medium; L - Low; C - Clean; U - Unknown

Relinquished by: (signature) _____	Date/Time: <u>4/11/14 175</u>	Turnaround <input checked="" type="checkbox"/> 10-Day <input type="checkbox"/> 7-Day <input type="checkbox"/> 14-Day <input type="checkbox"/> 24-Hr <input type="checkbox"/> 48-Hr <input type="checkbox"/> 72-Hr <input type="checkbox"/> 14-Day	Detection Limit Requirements Massachusetts: _____ Connecticut: _____ Other: _____
Received by: (signature) _____	Date/Time: <u>4/11/14 235</u>	<input checked="" type="checkbox"/> RUSH <input type="checkbox"/> Other	
Relinquished by: (signature) _____	Date/Time: <u>4/11/14 235</u>		
Received by: (signature) _____	Date/Time: <u>4/11/14 235</u>		

TURNAROUND TIME STARTS AT 9:00 A.M. THE DAY AFTER SAMPLE RECEIPT UNLESS THERE ARE QUESTIONS ON YOUR CHAIN. IF THIS FORM IS NOT FILLED OUT COMPLETELY OR IS INCORRECT, TURNAROUND TIME WILL NOT START UNTIL ALL QUESTIONS ARE ANSWERED BY OUR CLIENT.

Is your project MCP or RCP?

☒ MCP Form Required
☐ RCP Form Required
☐ MA State DW Form Required
☐ PWSD # _____

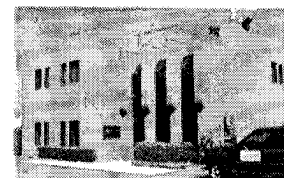
ALPHA LAB, LLC
ANALYTICAL LABORATORY
1000 ROUTE 1
EAST LONGMEADOW, MA 01028
978-234-6600

ACCREDITED BY NELAP
NELAC & ALPHA-LAP, LLC
Accredited
WBE/DBE Certified

39 Spruce St.
East Longmeadow, MA. 01028
P: 413-525-2332
F: 413-525-6405
www.contestlabs.com



Page 1 of 2



Sample Receipt Checklist

CLIENT NAME: Woodard + Curran RECEIVED BY: MJ DATE: 4/14/14

- 1) Was the chain(s) of custody relinquished and signed? Yes No No CoC Included
2) Does the chain agree with the samples? Yes No
If not, explain:
3) Are all the samples in good condition? Yes No
If not, explain:

4) How were the samples received:

On Ice ☒ Direct from Sampling ☐ Ambient ☐ In Cooler(s) ☒

Were the samples received in Temperature Compliance of (2-6°C)? Yes No N/A

Temperature °C by Temp blank _____ Temperature °C by Temp gun 2.8°C

5) Are there Dissolved samples for the lab to filter?

Yes No

Who was notified _____ Date _____ Time _____

6) Are there any RUSH or SHORT HOLDING TIME samples?

Yes No

Who was notified _____ Date _____ Time _____

7) Location where samples are stored:

19

Permission to subcontract samples? Yes No
(Walk-in clients only) if not already approved
Client Signature: _____

8) Do all samples have the proper Acid pH: Yes No N/A

9) Do all samples have the proper Base pH: Yes No N/A

10) Was the PC notified of any discrepancies with the CoC vs the samples: Yes No N/A

Containers received at Con-Test

	# of containers		# of containers
1 Liter Amber		8 oz amber/clear jar	
500 mL Amber		4 oz amber/clear jar	<u>5 A</u>
250 mL Amber (8oz amber)		2 oz amber/clear jar	
1 Liter Plastic		Plastic Bag / Ziploc	
500 mL Plastic		SOC Kit	
250 mL plastic		Non-ConTest Container	
40 mL Vial - type listed below		Perchlorate Kit	
Colisure / bacteria bottle		Flashpoint bottle	
Dissolved Oxygen bottle		Other glass jar	
Encore		Other	

Laboratory Comments:

40 mL vials: # HCl _____ # Methanol _____

Doc# 277 # Bisulfate _____ # DI Water _____

Rev. 4 August 2013 # Thiosulfate _____

Time and Date Frozen:

Login Sample Receipt Checklist**(Rejection Criteria Listing - Using Sample Acceptance Policy)****Any False statement will be brought to the attention of Client**

Question	Answer (True/False)	Comment
	T/F/NA	
1) The cooler's custody seal, if present, is intact.	T	
2) The cooler or samples do not appear to have been compromised or tampered with.	T	
3) Samples were received on ice.	T	
4) Cooler Temperature is acceptable.	T	
5) Cooler Temperature is recorded.	T	
6) COC is filled out in ink and legible.	T	
7) COC is filled out with all pertinent information.	T	
8) Field Sampler's name present on COC.	T	
9) There are no discrepancies between the sample IDs on the container and the COC.	T	
10) Samples are received within Holding Time.	T	
11) Sample containers have legible labels.	T	
12) Containers are not broken or leaking.	T	
13) Air Cassettes are not broken/open.	NA	
14) Sample collection date/times are provided.	T	
15) Appropriate sample containers are used.	T	
16) Proper collection media used.	T	
17) No headspace sample bottles are completely filled.	T	
18) There is sufficient volume for all requested analyses, including any requested MS/MSDs.	T	
19) Trip blanks provided if applicable.	T	
20) VOA sample vials do not have head space or bubble is <6mm (1/4") in diameter.	NA	
21) Samples do not require splitting or compositing.	T	

Doc #277 Rev. 4 August 2013

Who notified of False statements?**Log-In Technician Initials:****Date/Time:****Date/Time:**

MJ 4/14/14 1650

14D0397-06 470-VFC-B-12"

Analyte	Results		%RPD
Aroclor-1260 [2C]	0.17	0.1349105	23
Aroclor-1254 [2C]	0.92	0.8553184	7.29
Surrogates			
Decachlorobiphenyl	1.29	1.278413	0.902
Tetrachloro-m-xylene	1.09	1.196577	9.32

14D0509-01 WJH-VBC-034

Analyte	Results		%RPD
Surrogates			
Decachlorobiphenyl	0.405	0.3850293	5.06
Tetrachloro-m-xylene	0.425	0.4444244	4.47

14D0509-02 WJH-VBC-035

Analyte	Results		%RPD
Surrogates			
Decachlorobiphenyl	0.655	0.6369204	2.8
Tetrachloro-m-xylene	0.601	0.642592	6.69

14D0509-03 WJH-VBC-036

Analyte	Results		%RPD
Surrogates			
Decachlorobiphenyl	0.294	0.2759723	6.33
Tetrachloro-m-xylene	0.327	0.3409263	4.17

14D0509-04 WJH-VBC-037

Analyte	Results		%RPD
Surrogates			
Decachlorobiphenyl	0.955	0.9286635	2.8
Tetrachloro-m-xylene	0.893	0.9563318	6.85

14D0509-05 WJH-VBC-038

Analyte	Results		%RPD
Aroclor-1254 [2C]	140	139.6946	0.218

B093855-BLK1 Blank

Analyte	Results		%RPD
Surrogates			
Tetrachloro-m-xylene	0.764	0.81319	6.24
Decachlorobiphenyl	0.841	0.83146	1.14

B093855-BS1 LCS

Analyte	Results		%RPD
Aroclor-1260	0.20	0.20989	4.83
Aroclor-1016	0.20	0.217725	8.49
Surrogates			
Decachlorobiphenyl	0.849	0.83204	2.02
Tetrachloro-m-xylene	0.745	0.79582	6.6

B093855-BSD1 LCS Dup

Analyte	Results		%RPD
Aroclor-1016	0.21	0.218495	3.97
Aroclor-1260	0.21	0.21696	3.26
Surrogates			
Tetrachloro-m-xylene	0.783	0.833475	6.25
Decachlorobiphenyl	0.842	0.827155	1.78

B093855-MS1 Matrix Spike

Analyte	Results		%RPD
Aroclor-1016	0.25	0.269535	

Aroclor-1260	0.40	0.39627	0.937
Surrogates			
Tetrachloro-m-xylene	0.962	1.057605	9.47
Decachlorobiphenyl	1.17	1.15463	1.32

B093855-MSD1
Matrix Spike Dup

Analyte	Results		%RPD
Aroclor-1016	0.27	0.29005	7.16
Aroclor-1260	0.60	0.561665	6.6
Surrogates			
Tetrachloro-m-xylene	0.975	1.071395	9.42
Decachlorobiphenyl	1.15	1.125245	2.18

MADEP MCP Analytical Method Report Certification Form

Laboratory Name: Con-Test Analytical Laboratory

Project #: 14D0509

Project Location: William James Hall - Harvard

RTN:

This Form provides certifications for the following data set: [list Laboratory Sample ID Number(s)]

14D0509-01 thru 14D0509-05

Matrices: Product/Solid

CAM Protocol (check all that below)

8260 VOC CAM II A ()	7470/7471 Hg CAM IIIB ()	MassDEP VPH CAM IV A ()	8081 Pesticides CAM V B ()	7196 Hex Cr CAM VI B ()	MassDEP APH CAM IX A ()
8270 SVOC CAM II B ()	7010 Metals CAM III C ()	MassDEP EPH CAM IV A ()	8151 Herbicides CAM V C ()	8330 Explosives CAM VIII A ()	TO-15 VOC CAM IX B ()
6010 Metals CAM III A ()	6020 Metals CAM III D ()	8082 PCB CAM V A (X)	9014 Total Cyanide/PAC CAM VI A ()	6860 Perchlorate CAM VIII B ()	

Affirmative response to Questions A through F is required for "Presumptive Certainty" status

A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹
E a	VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications).	<input type="checkbox"/> Yes <input type="checkbox"/> No ¹
E b	APH and TO-15 Methods only: Was the complete analyte list reported for each method?	<input type="checkbox"/> Yes <input type="checkbox"/> No ¹
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all No responses to Questions A through E)?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹

A response to questions G, H and I below is required for "Presumptive Certainty" status


G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹
----------	---	--

Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.

H	Were all QC performance standards specified in the CAM protocol(s) achieved?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No ¹
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹

¹ All Negative responses must be addressed in an attached Environmental Laboratory case narrative.

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: 

Position: Laboratory Director

Printed Name: Michael A. Erickson

Date: 04/21/14

April 24, 2014

Amy Martin
Woodard & Curran - Andover, MA
40 Shattuck Road., Suite 110
Andover, MA 01810

Project Location: William James Hall - Harvard
Client Job Number:
Project Number: 226574
Laboratory Work Order Number: 14D0663

Enclosed are results of analyses for samples received by the laboratory on April 17, 2014. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Meghan E. Kelley
Project Manager

Woodard & Curran - Andover, MA
40 Shattuck Road., Suite 110
Andover, MA 01810
ATTN: Amy Martin

REPORT DATE: 4/24/2014

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 226574

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 14D0663

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: William James Hall - Harvard

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
WJH-VBC-042	14D0663-01	Product/Solid		SW-846 8082A	
WJH-VBC-043	14D0663-02	Product/Solid		SW-846 8082A	
WJH-VBC-047	14D0663-03	Product/Solid		SW-846 8082A	
WJH-VBC-048	14D0663-04	Product/Solid		SW-846 8082A	

CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

SW-846 8082A**Qualifications:**

Sample contains two incompletely resolved aroclors. Aroclor with the closest matching pattern is reported.

Analyte & Samples(s) Qualified:**Aroclor-1254, Aroclor-1254 [2C]**14D0663-03[WJH-VBC-047]

Sample fingerprint does not match standard exactly. Sample was quantitated against the closest matching standard.

Analyte & Samples(s) Qualified:**Aroclor-1242, Aroclor-1242 [2C]**14D0663-02[WJH-VBC-043]

The surrogate recovery for this sample is not available due to sample dilution below the surrogate reporting limit required from high analyte concentration and/or matrix interferences.

Analyte & Samples(s) Qualified:**Decachlorobiphenyl, Decachlorobiphenyl [2C], Tetrachloro-m-xylene, Tetrachloro-m-xylene [2C]**14D0663-04[WJH-VBC-048]

The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.

I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.



Michael A. Erickson
Laboratory Director

Project Location: William James Hall - Harvard

Sample Description:

Work Order: 14D0663

Date Received: 4/17/2014

Field Sample #: WJH-VBC-042

Sampled: 4/16/2014 07:30

Sample ID: 14D0663-01

Sample Matrix: Product/Solid

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.10	mg/Kg	1		SW-846 8082A	4/17/14	4/18/14 17:13	MJC
Aroclor-1221 [1]	ND	0.10	mg/Kg	1		SW-846 8082A	4/17/14	4/18/14 17:13	MJC
Aroclor-1232 [1]	ND	0.10	mg/Kg	1		SW-846 8082A	4/17/14	4/18/14 17:13	MJC
Aroclor-1242 [1]	ND	0.10	mg/Kg	1		SW-846 8082A	4/17/14	4/18/14 17:13	MJC
Aroclor-1248 [1]	ND	0.10	mg/Kg	1		SW-846 8082A	4/17/14	4/18/14 17:13	MJC
Aroclor-1254 [1]	ND	0.10	mg/Kg	1		SW-846 8082A	4/17/14	4/18/14 17:13	MJC
Aroclor-1260 [1]	ND	0.10	mg/Kg	1		SW-846 8082A	4/17/14	4/18/14 17:13	MJC
Aroclor-1262 [1]	ND	0.10	mg/Kg	1		SW-846 8082A	4/17/14	4/18/14 17:13	MJC
Aroclor-1268 [1]	ND	0.10	mg/Kg	1		SW-846 8082A	4/17/14	4/18/14 17:13	MJC
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	126	30-150						4/18/14 17:13	
Decachlorobiphenyl [2]	125	30-150						4/18/14 17:13	
Tetrachloro-m-xylene [1]	114	30-150						4/18/14 17:13	
Tetrachloro-m-xylene [2]	107	30-150						4/18/14 17:13	

Project Location: William James Hall - Harvard

Sample Description:

Work Order: 14D0663

Date Received: 4/17/2014

Field Sample #: WJH-VBC-043

Sampled: 4/16/2014 08:00

Sample ID: 14D0663-02

Sample Matrix: Product/Solid

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.096	mg/Kg	1		SW-846 8082A	4/17/14	4/18/14 17:25	MJC
Aroclor-1221 [1]	ND	0.096	mg/Kg	1		SW-846 8082A	4/17/14	4/18/14 17:25	MJC
Aroclor-1232 [1]	ND	0.096	mg/Kg	1		SW-846 8082A	4/17/14	4/18/14 17:25	MJC
Aroclor-1242 [1]	0.55	0.096	mg/Kg	1	O-04	SW-846 8082A	4/17/14	4/18/14 17:25	MJC
Aroclor-1248 [1]	ND	0.096	mg/Kg	1		SW-846 8082A	4/17/14	4/18/14 17:25	MJC
Aroclor-1254 [1]	ND	0.096	mg/Kg	1		SW-846 8082A	4/17/14	4/18/14 17:25	MJC
Aroclor-1260 [1]	ND	0.096	mg/Kg	1		SW-846 8082A	4/17/14	4/18/14 17:25	MJC
Aroclor-1262 [1]	ND	0.096	mg/Kg	1		SW-846 8082A	4/17/14	4/18/14 17:25	MJC
Aroclor-1268 [1]	ND	0.096	mg/Kg	1		SW-846 8082A	4/17/14	4/18/14 17:25	MJC
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	120	30-150						4/18/14 17:25	
Decachlorobiphenyl [2]	121	30-150						4/18/14 17:25	
Tetrachloro-m-xylene [1]	114	30-150						4/18/14 17:25	
Tetrachloro-m-xylene [2]	106	30-150						4/18/14 17:25	

Project Location: William James Hall - Harvard

Sample Description:

Work Order: 14D0663

Date Received: 4/17/2014

Field Sample #: WJH-VBC-047

Sampled: 4/17/2014 10:30

Sample ID: 14D0663-03

Sample Matrix: Product/Solid

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.098	mg/Kg	1		SW-846 8082A	4/17/14	4/18/14 17:37	MJC
Aroclor-1221 [1]	ND	0.098	mg/Kg	1		SW-846 8082A	4/17/14	4/18/14 17:37	MJC
Aroclor-1232 [1]	ND	0.098	mg/Kg	1		SW-846 8082A	4/17/14	4/18/14 17:37	MJC
Aroclor-1242 [1]	ND	0.098	mg/Kg	1		SW-846 8082A	4/17/14	4/18/14 17:37	MJC
Aroclor-1248 [1]	ND	0.098	mg/Kg	1		SW-846 8082A	4/17/14	4/18/14 17:37	MJC
Aroclor-1254 [2]	0.40	0.098	mg/Kg	1	O-03	SW-846 8082A	4/17/14	4/18/14 17:37	MJC
Aroclor-1260 [1]	ND	0.098	mg/Kg	1		SW-846 8082A	4/17/14	4/18/14 17:37	MJC
Aroclor-1262 [1]	ND	0.098	mg/Kg	1		SW-846 8082A	4/17/14	4/18/14 17:37	MJC
Aroclor-1268 [1]	ND	0.098	mg/Kg	1		SW-846 8082A	4/17/14	4/18/14 17:37	MJC
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	95.4	30-150						4/18/14 17:37	
Decachlorobiphenyl [2]	95.0	30-150						4/18/14 17:37	
Tetrachloro-m-xylene [1]	98.5	30-150						4/18/14 17:37	
Tetrachloro-m-xylene [2]	91.4	30-150						4/18/14 17:37	

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: William James Hall - Harvard

Sample Description:

Work Order: 14D0663

Date Received: 4/17/2014

Field Sample #: WJH-VBC-048

Sampled: 4/17/2014 11:00

Sample ID: 14D0663-04

Sample Matrix: Product/Solid

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	9.7	mg/Kg	100		SW-846 8082A	4/17/14	4/19/14 9:35	MJC
Aroclor-1221 [1]	ND	9.7	mg/Kg	100		SW-846 8082A	4/17/14	4/19/14 9:35	MJC
Aroclor-1232 [1]	ND	9.7	mg/Kg	100		SW-846 8082A	4/17/14	4/19/14 9:35	MJC
Aroclor-1242 [1]	ND	9.7	mg/Kg	100		SW-846 8082A	4/17/14	4/19/14 9:35	MJC
Aroclor-1248 [1]	ND	9.7	mg/Kg	100		SW-846 8082A	4/17/14	4/19/14 9:35	MJC
Aroclor-1254 [1]	72	9.7	mg/Kg	100		SW-846 8082A	4/17/14	4/19/14 9:35	MJC
Aroclor-1260 [2]	14	9.7	mg/Kg	100		SW-846 8082A	4/17/14	4/19/14 9:35	MJC
Aroclor-1262 [1]	ND	9.7	mg/Kg	100		SW-846 8082A	4/17/14	4/19/14 9:35	MJC
Aroclor-1268 [1]	ND	9.7	mg/Kg	100		SW-846 8082A	4/17/14	4/19/14 9:35	MJC
Surrogates	% Recovery	Recovery Limits			Flag/Qual				
Decachlorobiphenyl [1]	*	30-150			S-01			4/19/14 9:35	
Decachlorobiphenyl [2]	*	30-150			S-01			4/19/14 9:35	
Tetrachloro-m-xylene [1]	*	30-150			S-01			4/19/14 9:35	
Tetrachloro-m-xylene [2]	*	30-150			S-01			4/19/14 9:35	

Sample Extraction Data

Prep Method: SW-846 3540C-SW-846 8082A

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
14D0663-01 [WJH-VBC-042]	B094018	2.01	10.0	04/17/14
14D0663-02 [WJH-VBC-043]	B094018	2.09	10.0	04/17/14
14D0663-03 [WJH-VBC-047]	B094018	2.04	10.0	04/17/14
14D0663-04 [WJH-VBC-048]	B094018	2.06	10.0	04/17/14

QUALITY CONTROL
Polychlorinated Biphenyls with 3540 Soxhlet Extraction - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B094018 - SW-846 3540C
Blank (B094018-BLK1)

Prepared: 04/17/14 Analyzed: 04/18/14

Aroclor-1016	ND	0.10	mg/Kg							
Aroclor-1016 [2C]	ND	0.10	mg/Kg							
Aroclor-1221	ND	0.10	mg/Kg							
Aroclor-1221 [2C]	ND	0.10	mg/Kg							
Aroclor-1232	ND	0.10	mg/Kg							
Aroclor-1232 [2C]	ND	0.10	mg/Kg							
Aroclor-1242	ND	0.10	mg/Kg							
Aroclor-1242 [2C]	ND	0.10	mg/Kg							
Aroclor-1248	ND	0.10	mg/Kg							
Aroclor-1248 [2C]	ND	0.10	mg/Kg							
Aroclor-1254	ND	0.10	mg/Kg							
Aroclor-1254 [2C]	ND	0.10	mg/Kg							
Aroclor-1260	ND	0.10	mg/Kg							
Aroclor-1260 [2C]	ND	0.10	mg/Kg							
Aroclor-1262	ND	0.10	mg/Kg							
Aroclor-1262 [2C]	ND	0.10	mg/Kg							
Aroclor-1268	ND	0.10	mg/Kg							
Aroclor-1268 [2C]	ND	0.10	mg/Kg							
Surrogate: Decachlorobiphenyl	1.04		mg/Kg	1.00		104	30-150			
Surrogate: Decachlorobiphenyl [2C]	1.05		mg/Kg	1.00		105	30-150			
Surrogate: Tetrachloro-m-xylene	0.850		mg/Kg	1.00		85.0	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.792		mg/Kg	1.00		79.2	30-150			

LCS (B094018-BS1)

Prepared: 04/17/14 Analyzed: 04/18/14

Aroclor-1016	0.24	0.10	mg/Kg	0.250		97.4	40-140			
Aroclor-1016 [2C]	0.22	0.10	mg/Kg	0.250		89.4	40-140			
Aroclor-1260	0.25	0.10	mg/Kg	0.250		98.4	40-140			
Aroclor-1260 [2C]	0.25	0.10	mg/Kg	0.250		101	40-140			
Surrogate: Decachlorobiphenyl	1.08		mg/Kg	1.00		108	30-150			
Surrogate: Decachlorobiphenyl [2C]	1.08		mg/Kg	1.00		108	30-150			
Surrogate: Tetrachloro-m-xylene	0.909		mg/Kg	1.00		90.9	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.846		mg/Kg	1.00		84.6	30-150			

LCS Dup (B094018-BSD1)

Prepared: 04/17/14 Analyzed: 04/18/14

Aroclor-1016	0.25	0.10	mg/Kg	0.250		101	40-140	3.38	30	
Aroclor-1016 [2C]	0.24	0.10	mg/Kg	0.250		96.4	40-140	7.58	30	
Aroclor-1260	0.25	0.10	mg/Kg	0.250		98.7	40-140	0.311	30	
Aroclor-1260 [2C]	0.26	0.10	mg/Kg	0.250		102	40-140	1.16	30	
Surrogate: Decachlorobiphenyl	1.02		mg/Kg	1.00		102	30-150			
Surrogate: Decachlorobiphenyl [2C]	1.02		mg/Kg	1.00		102	30-150			
Surrogate: Tetrachloro-m-xylene	0.952		mg/Kg	1.00		95.2	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.882		mg/Kg	1.00		88.2	30-150			

FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
	No results have been blank subtracted unless specified in the case narrative section.
O-03	Sample contains two incompletely resolved aroclors. Aroclor with the closest matching pattern is reported.
O-04	Sample fingerprint does not match standard exactly. Sample was quantitated against the closest matching standard.
S-01	The surrogate recovery for this sample is not available due to sample dilution below the surrogate reporting limit required from high analyte concentration and/or matrix interferences.

CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
<i>SW-846 8082A in Product/Solid</i>	
Aroclor-1016	CT,NH,NY,ME,NC,VA,NJ
Aroclor-1016 [2C]	CT,NH,NY,ME,NC,VA,NJ
Aroclor-1221	CT,NH,NY,ME,NC,VA,NJ
Aroclor-1221 [2C]	CT,NH,NY,ME,NC,VA,NJ
Aroclor-1232	CT,NH,NY,ME,NC,VA,NJ
Aroclor-1232 [2C]	CT,NH,NY,ME,NC,VA,NJ
Aroclor-1242	CT,NH,NY,ME,NC,VA,NJ
Aroclor-1242 [2C]	CT,NH,NY,ME,NC,VA,NJ
Aroclor-1248	CT,NH,NY,ME,NC,VA,NJ
Aroclor-1248 [2C]	CT,NH,NY,ME,NC,VA,NJ
Aroclor-1254	CT,NH,NY,ME,NC,VA,NJ
Aroclor-1254 [2C]	CT,NH,NY,ME,NC,VA,NJ
Aroclor-1260	CT,NH,NY,ME,NC,VA,NJ
Aroclor-1260 [2C]	CT,NH,NY,ME,NC,VA,NJ

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC	100033	02/1/2016
MA	Massachusetts DEP	M-MA100	06/30/2014
CT	Connecticut Department of Public Health	PH-0567	09/30/2015
NY	New York State Department of Health	10899 NELAP	04/1/2015
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2015
RI	Rhode Island Department of Health	LAO00112	12/30/2014
NC	North Carolina Div. of Water Quality	652	12/31/2014
NJ	New Jersey DEP	MA007 NELAP	06/30/2014
FL	Florida Department of Health	E871027 NELAP	06/30/2014
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2014
WA	State of Washington Department of Ecology	C2065	02/23/2015
ME	State of Maine	2011028	06/9/2015
VA	Commonwealth of Virginia	460217	12/14/2014
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2014



con-test
ANALYTICAL LABORATORY

Phone: 413-526-2332
Fax: 413-526-6405
Email: info@contestlabs.com
www.contestlabs.com

CHAIN OF CUSTODY RECORD

39 Spruce Street
East Longmeadow, MA 01028

Page 1 of 1

Rev 04.05.12

Company Name: Woodward & Curran

Telephone: _____

Address: 40 Shattuck Rd

Project # 220574

Attention: Andrew MA

Client PO# _____

Project Location: Harvard - William James Hall

DATA DELIVERY (check all that apply)
☐ FAX ☒ EMAIL ☐ WEBSITE

Sampled By: Jill Russell

Format: ☒ PDF ☒ EXCEL ☐ OGIS
☐ OTHER _____

Project Proposal Provided? (for billing purposes)
☐ Yes ☐ No

Con-Test Lab ID _____

Client Sample ID / Description _____

Beginning Date/Time _____

Ending Date/Time _____

Composite _____

Grab _____

*Matrix Conc Code _____

01 WJH-VBC-042 4/16/14 0730 X Contest U

02 WJH-VBC-043 4/16/14 0800 X Contest U

03 WJH-VBC-047 4/17/14 1030 X Contest U

04 WJH-VBC-048 4/17/14 1100 X Contest U

PCBs 8082 Soxhlet

1

1

1

Comments: PCBs 8082 Soxhlet

Relinquished by: (signature) _____

Date/Time: 4/17/14

Turnaround ☐ 7-Day ☒ to Day 5d-7

Detection Limit Requirements _____

Massachusetts: _____

Is your project MCP or RCP? ☒ MCP Form Required ☐ RCP Form Required

MA State DW Form Required PWSID # _____

Relinquished by: (signature) _____

Date/Time: 4/17/14

Turnaround ☐ 7-Day ☒ to Day 5d-7

Detection Limit Requirements _____

Massachusetts: _____

Is your project MCP or RCP? ☒ MCP Form Required ☐ RCP Form Required

MA State DW Form Required PWSID # _____

Relinquished by: (signature) _____

Date/Time: 4/17/14

Turnaround ☐ 7-Day ☒ to Day 5d-7

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Detection Limit Requirements _____

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Relinquished by: (signature) _____

Date/Time: 4/17/14

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Date/Time: 4/17/14

Turnaround ☐ 7-Day ☒ to Day 5d-7

Detection Limit Requirements _____

Massachusetts: _____

Is your project MCP or RCP? ☒ MCP Form Required ☐ RCP Form Required

MA State DW Form Required PWSID # _____

Relinquished by: (signature) _____

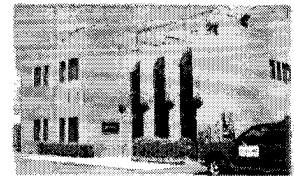
TURNAROUND TIME STARTS AT 9:00 A.M. THE DAY AFTER SAMPLE RECEIPT UNLESS THERE ARE QUESTIONS ON YOUR CHAIN. IF THIS FORM IS NOT FILLED OUT COMPLETELY OR IS INCORRECT, TURNAROUND TIME WILL NOT START UNTIL ALL QUESTIONS ARE ANSWERED BY OUR CLIENT.

PLEASE BE CAREFUL NOT TO CONTAMINATE THIS DOCUMENT

39 Spruce St.
East Longmeadow, MA. 01028
P: 413-525-2332
F: 413-525-6405
www.contestlabs.com



Page 1 of 2



Sample Receipt Checklist

CLIENT NAME: Woodford & Cramer RECEIVED BY: RCF DATE: 4/17/14

1) Was the chain(s) of custody relinquished and signed? Yes No No CoC Included

2) Does the chain agree with the samples?

Yes No

If not, explain:

3) Are all the samples in good condition?

Yes No

If not, explain:

4) How were the samples received:

On Ice ☒

Direct from Sampling ☐

Ambient ☐

In Cooler(s) ☒

Were the samples received in Temperature Compliance of (2-6°C)? Yes No N/A

Temperature °C by Temp blank _____ Temperature °C by Temp gun 23°C

5) Are there Dissolved samples for the lab to filter?

Yes No

Who was notified _____ Date _____ Time _____

6) Are there any RUSH or SHORT HOLDING TIME samples?

Yes No

Who was notified _____ Date _____ Time _____

7) Location where samples are stored:

19

Permission to subcontract samples? Yes No
(Walk-in clients only) if not already approved
Client Signature: _____

8) Do all samples have the proper Acid pH: Yes No N/A

9) Do all samples have the proper Base pH: Yes No N/A

10) Was the PC notified of any discrepancies with the CoC vs the samples: Yes No N/A

Containers received at Con-Test

	# of containers		# of containers
1 Liter Amber		8 oz amber/clear jar	
500 mL Amber		4 oz <u>amber</u> /clear jar	<u>4</u>
250 mL Amber (8oz amber)		2 oz amber/clear jar	
1 Liter Plastic		Plastic Bag / Ziploc	
500 mL Plastic		SOC Kit	
250 mL plastic		Non-ConTest Container	
40 mL Vial - type listed below		Perchlorate Kit	
Colisure / bacteria bottle		Flashpoint bottle	
Dissolved Oxygen bottle		Other glass jar	
Encore		Other	

Laboratory Comments:

40 mL vials: # HCl _____ # Methanol _____

Doc# 277 # Bisulfate _____ # DI Water _____

Rev. 4 August 2013 # Thiosulfate _____ Unpreserved _____

Time and Date Frozen:

Login Sample Receipt Checklist

(Rejection Criteria Listing - Using Sample Acceptance Policy)

Any False statement will be brought to the attention of Client

<u>Question</u>	<u>Answer (True/False)</u>		<u>Comment</u>
	T/F/NA		
1) The cooler's custody seal, if present, is intact.	T		
2) The cooler or samples do not appear to have been compromised or tampered with.	T		
3) Samples were received on ice.	T		
4) Cooler Temperature is acceptable.	T		
5) Cooler Temperature is recorded.	T		
6) COC is filled out in ink and legible.	T		
7) COC is filled out with all pertinent information.	T		
8) Field Sampler's name present on COC.	T		
9) There are no discrepancies between the sample IDs on the container and the COC.	T		
10) Samples are received within Holding Time.	T		
11) Sample containers have legible labels.	T		
12) Containers are not broken or leaking.	T		
13) Air Cassettes are not broken/open.	NA		
14) Sample collection date/times are provided.	T		
15) Appropriate sample containers are used.	T		
16) Proper collection media used.	T		
17) No headspace sample bottles are completely filled.	T		
18) There is sufficient volume for all requested analyses, including any requested MS/MSDs.	T		
19) Trip blanks provided if applicable.	NA		
20) VOA sample vials do not have head space or bubble is <6mm (1/4") in diameter.	NA		
21) Samples do not require splitting or compositing.	T		

Doc #277 Rev. 4 August 2013

Who notified of False statements?

Log-In Technician Initials:

Date/Time:

Date/Time:

PLF 4/17/14 1620

14D0617-01 LGRC-VBC-106

Analyte	Results		%RPD
Aroclor-1260 [2C]	130	90.68247	35.6
Aroclor-1254 [2C]	1000	1027.867	2.75

14D0663-01 WJH-VBC-042

Analyte	Results		%RPD
Surrogates			
Decachlorobiphenyl	1.25	1.245562	0.356
Tetrachloro-m-xylene	1.14	1.061438	7.14

14D0663-02 WJH-VBC-043

Analyte	Results		%RPD
Aroclor-1242	0.55	0.5353828	2.69
Surrogates			
Decachlorobiphenyl	1.15	1.159014	0.781
Tetrachloro-m-xylene	1.10	1.015861	7.95

14D0663-03 WJH-VBC-047

Analyte	Results		%RPD
Aroclor-1254 [2C]	0.40	0.3632402	9.63
Surrogates			
Decachlorobiphenyl	0.935	0.9309363	0.436
Tetrachloro-m-xylene	0.965	0.8961226	7.4

14D0663-04 WJH-VBC-048

Analyte	Results		%RPD
Aroclor-1254	72	71.20825	1.11
Aroclor-1260 [2C]	14	10.39418	29.6

B094018-BLK1 Blank

Analyte	Results		%RPD
Surrogates			
Tetrachloro-m-xylene	0.850	0.79233	7.02
Decachlorobiphenyl	1.04	1.05322	1.26

B094018-BS1 LCS

Analyte	Results		%RPD
Aroclor-1260	0.25	0.253025	1.2
Aroclor-1016	0.24	0.22343	7.15
Surrogates			
Decachlorobiphenyl	1.08	1.08396	0.366
Tetrachloro-m-xylene	0.909	0.84583	7.2

B094018-BSD1 LCS Dup

Analyte	Results		%RPD
Aroclor-1016	0.25	0.24103	3.65
Aroclor-1260	0.25	0.25599	2.37
Surrogates			
Decachlorobiphenyl	1.02	1.016515	0.342
Tetrachloro-m-xylene	0.952	0.88243	7.58

B094018-MS1 Matrix Spike

Analyte	Results		%RPD
Aroclor-1016	110	206.9474	61.2
Aroclor-1260	250	301.0349	18.5
Surrogates			
Decachlorobiphenyl	0.991	0.98949	0.152
Tetrachloro-m-xylene	0.954	0.887135	7.26

B094018-MSD1

Matrix Spike Dup

Analyte	Results		%RPD
Aroclor-1016	87	169.4949	64.3
Aroclor-1260	190	334.0959	55
Surrogates			
Tetrachloro-m-xylene	0.907	0.844755	7.11
Decachlorobiphenyl	0.987	0.97536	1.19

MADEP MCP Analytical Method Report Certification Form

Laboratory Name: Con-Test Analytical Laboratory	Project #: 14D0663
Project Location: William James Hall - Harvard	RTN:

This Form provides certifications for the following data set: [list Laboratory Sample ID Number(s)]

14D0663-01 thru 14D0663-04

Matrices: Product/Solid

CAM Protocol (check all that below)

8260 VOC CAM II A ()	7470/7471 Hg CAM IIIB ()	MassDEP VPH CAM IV A ()	8081 Pesticides CAM V B ()	7196 Hex Cr CAM VI B ()	MassDEP APH CAM IX A ()
8270 SVOC CAM II B ()	7010 Metals CAM III C ()	MassDEP EPH CAM IV A ()	8151 Herbicides CAM V C ()	8330 Explosives CAM VIII A ()	TO-15 VOC CAM IX B ()
6010 Metals CAM III A ()	6020 Metals CAM III D ()	8082 PCB CAM V A (X)	9014 Total Cyanide/PAC CAM VI A ()	6860 Perchlorate CAM VIII B ()	

Affirmative response to Questions A through F is required for "Presumptive Certainty" status

A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹
E a	VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications).	<input type="checkbox"/> Yes <input type="checkbox"/> No ¹
E b	APH and TO-15 Methods only: Was the complete analyte list reported for each method?	<input type="checkbox"/> Yes <input type="checkbox"/> No ¹
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all No responses to Questions A through E)?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹

A response to questions G, H and I below is required for "Presumptive Certainty" status

G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹
----------	---	--

Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.

H	Were all QC performance standards specified in the CAM protocol(s) achieved?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No ¹
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹

¹ All Negative responses must be addressed in an attached Environmental Laboratory case narrative.

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: Michael A. Erickson

Position: Laboratory Director

Printed Name: Michael A. Erickson

Date: 04/24/14

April 29, 2014

Amy Martin
Woodard & Curran - Andover, MA
40 Shattuck Road., Suite 110
Andover, MA 01810

Project Location: William James Hall - Harvard
Client Job Number:
Project Number: 226574
Laboratory Work Order Number: 14D0846

Enclosed are results of analyses for samples received by the laboratory on April 22, 2014. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Meghan E. Kelley
Project Manager

Woodard & Curran - Andover, MA
40 Shattuck Road., Suite 110
Andover, MA 01810
ATTN: Amy Martin

REPORT DATE: 4/29/2014

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 226574

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 14D0846

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: William James Hall - Harvard

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
WJH-VBCQ-053	14D0846-01	Water		SW-846 8082A	
WJH-VBC-049	14D0846-02	Product/Solid		SW-846 8082A	
WJH-VBC-050	14D0846-03	Product/Solid		SW-846 8082A	
WJH-VBC-051	14D0846-04	Product/Solid		SW-846 8082A	
WJH-VBCD-052	14D0846-05	Product/Solid		SW-846 8082A	

CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

SW-846 8082A**Qualifications:**

Sample contains two incompletely resolved aroclors. Aroclor with the closest matching pattern is reported.

Analyte & Samples(s) Qualified:**Aroclor-1254 [2C]**

14D0846-02[WJH-VBC-049]

The surrogate recovery for this sample is not available due to sample dilution below the surrogate reporting limit required from high analyte concentration and/or matrix interferences.

Analyte & Samples(s) Qualified:**Decachlorobiphenyl, Decachlorobiphenyl [2C], Tetrachloro-m-xylene, Tetrachloro-m-xylene [2C]**

14D0846-02[WJH-VBC-049], 14D0846-03[WJH-VBC-050], 14D0846-04[WJH-VBC-051], 14D0846-05[WJH-VBCD-052]

The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.

I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.



Michael A. Erickson
Laboratory Director

Project Location: William James Hall - Harvard

Sample Description:

Work Order: 14D0846

Date Received: 4/22/2014

Field Sample #: WJH-VBCQ-053

Sampled: 4/22/2014 13:40

Sample ID: 14D0846-01

Sample Matrix: Water

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/L	1		SW-846 8082A	4/23/14	4/24/14 19:40	KAL
Aroclor-1221 [1]	ND	0.20	µg/L	1		SW-846 8082A	4/23/14	4/24/14 19:40	KAL
Aroclor-1232 [1]	ND	0.20	µg/L	1		SW-846 8082A	4/23/14	4/24/14 19:40	KAL
Aroclor-1242 [1]	ND	0.20	µg/L	1		SW-846 8082A	4/23/14	4/24/14 19:40	KAL
Aroclor-1248 [1]	ND	0.20	µg/L	1		SW-846 8082A	4/23/14	4/24/14 19:40	KAL
Aroclor-1254 [1]	ND	0.20	µg/L	1		SW-846 8082A	4/23/14	4/24/14 19:40	KAL
Aroclor-1260 [1]	ND	0.20	µg/L	1		SW-846 8082A	4/23/14	4/24/14 19:40	KAL
Aroclor-1262 [1]	ND	0.20	µg/L	1		SW-846 8082A	4/23/14	4/24/14 19:40	KAL
Aroclor-1268 [1]	ND	0.20	µg/L	1		SW-846 8082A	4/23/14	4/24/14 19:40	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	85.3	30-150						4/24/14 19:40	
Decachlorobiphenyl [2]	85.0	30-150						4/24/14 19:40	
Tetrachloro-m-xylene [1]	71.9	30-150						4/24/14 19:40	
Tetrachloro-m-xylene [2]	78.3	30-150						4/24/14 19:40	

Project Location: William James Hall - Harvard

Sample Description:

Work Order: 14D0846

Date Received: 4/22/2014

Field Sample #: WJH-VBC-049

Sampled: 4/21/2014 07:10

Sample ID: 14D0846-02

Sample Matrix: Product/Solid

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	47	mg/Kg	500		SW-846 8082A	4/23/14	4/25/14 9:31	KAL
Aroclor-1221 [1]	ND	47	mg/Kg	500		SW-846 8082A	4/23/14	4/25/14 9:31	KAL
Aroclor-1232 [1]	ND	47	mg/Kg	500		SW-846 8082A	4/23/14	4/25/14 9:31	KAL
Aroclor-1242 [1]	ND	47	mg/Kg	500		SW-846 8082A	4/23/14	4/25/14 9:31	KAL
Aroclor-1248 [1]	ND	47	mg/Kg	500		SW-846 8082A	4/23/14	4/25/14 9:31	KAL
Aroclor-1254 [2]	390	47	mg/Kg	500	O-03	SW-846 8082A	4/23/14	4/25/14 9:31	KAL
Aroclor-1260 [1]	ND	47	mg/Kg	500		SW-846 8082A	4/23/14	4/25/14 9:31	KAL
Aroclor-1262 [1]	ND	47	mg/Kg	500		SW-846 8082A	4/23/14	4/25/14 9:31	KAL
Aroclor-1268 [1]	ND	47	mg/Kg	500		SW-846 8082A	4/23/14	4/25/14 9:31	KAL
Surrogates	% Recovery	Recovery Limits			Flag/Qual				
Decachlorobiphenyl [1]	*	30-150			S-01			4/25/14 9:31	
Decachlorobiphenyl [2]	*	30-150			S-01			4/25/14 9:31	
Tetrachloro-m-xylene [1]	*	30-150			S-01			4/25/14 9:31	
Tetrachloro-m-xylene [2]	*	30-150			S-01			4/25/14 9:31	

Project Location: William James Hall - Harvard

Sample Description:

Work Order: 14D0846

Date Received: 4/22/2014

Field Sample #: WJH-VBC-050

Sampled: 4/21/2014 07:20

Sample ID: 14D0846-03

Sample Matrix: Product/Solid

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	9.6	mg/Kg	100		SW-846 8082A	4/23/14	4/25/14 9:49	KAL
Aroclor-1221 [1]	ND	9.6	mg/Kg	100		SW-846 8082A	4/23/14	4/25/14 9:49	KAL
Aroclor-1232 [1]	ND	9.6	mg/Kg	100		SW-846 8082A	4/23/14	4/25/14 9:49	KAL
Aroclor-1242 [1]	ND	9.6	mg/Kg	100		SW-846 8082A	4/23/14	4/25/14 9:49	KAL
Aroclor-1248 [1]	ND	9.6	mg/Kg	100		SW-846 8082A	4/23/14	4/25/14 9:49	KAL
Aroclor-1254 [2]	46	9.6	mg/Kg	100		SW-846 8082A	4/23/14	4/25/14 9:49	KAL
Aroclor-1260 [2]	9.8	9.6	mg/Kg	100		SW-846 8082A	4/23/14	4/25/14 9:49	KAL
Aroclor-1262 [1]	ND	9.6	mg/Kg	100		SW-846 8082A	4/23/14	4/25/14 9:49	KAL
Aroclor-1268 [1]	ND	9.6	mg/Kg	100		SW-846 8082A	4/23/14	4/25/14 9:49	KAL
Surrogates	% Recovery	Recovery Limits			Flag/Qual				
Decachlorobiphenyl [1]	*	30-150			S-01			4/25/14 9:49	
Decachlorobiphenyl [2]	*	30-150			S-01			4/25/14 9:49	
Tetrachloro-m-xylene [1]	*	30-150			S-01			4/25/14 9:49	
Tetrachloro-m-xylene [2]	*	30-150			S-01			4/25/14 9:49	

Project Location: William James Hall - Harvard

Sample Description:

Work Order: 14D0846

Date Received: 4/22/2014

Field Sample #: WJH-VBC-051

Sampled: 4/21/2014 07:30

Sample ID: 14D0846-04

Sample Matrix: Product/Solid

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	50	mg/Kg	500		SW-846 8082A	4/23/14	4/25/14 10:07	KAL
Aroclor-1221 [1]	ND	50	mg/Kg	500		SW-846 8082A	4/23/14	4/25/14 10:07	KAL
Aroclor-1232 [1]	ND	50	mg/Kg	500		SW-846 8082A	4/23/14	4/25/14 10:07	KAL
Aroclor-1242 [1]	ND	50	mg/Kg	500		SW-846 8082A	4/23/14	4/25/14 10:07	KAL
Aroclor-1248 [1]	ND	50	mg/Kg	500		SW-846 8082A	4/23/14	4/25/14 10:07	KAL
Aroclor-1254 [2]	480	50	mg/Kg	500		SW-846 8082A	4/23/14	4/25/14 10:07	KAL
Aroclor-1260 [2]	55	50	mg/Kg	500		SW-846 8082A	4/23/14	4/25/14 10:07	KAL
Aroclor-1262 [1]	ND	50	mg/Kg	500		SW-846 8082A	4/23/14	4/25/14 10:07	KAL
Aroclor-1268 [1]	ND	50	mg/Kg	500		SW-846 8082A	4/23/14	4/25/14 10:07	KAL
Surrogates	% Recovery	Recovery Limits			Flag/Qual				
Decachlorobiphenyl [1]	*	30-150			S-01			4/25/14 10:07	
Decachlorobiphenyl [2]	*	30-150			S-01			4/25/14 10:07	
Tetrachloro-m-xylene [1]	*	30-150			S-01			4/25/14 10:07	
Tetrachloro-m-xylene [2]	*	30-150			S-01			4/25/14 10:07	

Project Location: William James Hall - Harvard

Sample Description:

Work Order: 14D0846

Date Received: 4/22/2014

Field Sample #: WJH-VBCD-052

Sampled: 4/21/2014 07:32

Sample ID: 14D0846-05

Sample Matrix: Product/Solid

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	44	mg/Kg	500		SW-846 8082A	4/23/14	4/25/14 10:25	KAL
Aroclor-1221 [1]	ND	44	mg/Kg	500		SW-846 8082A	4/23/14	4/25/14 10:25	KAL
Aroclor-1232 [1]	ND	44	mg/Kg	500		SW-846 8082A	4/23/14	4/25/14 10:25	KAL
Aroclor-1242 [1]	ND	44	mg/Kg	500		SW-846 8082A	4/23/14	4/25/14 10:25	KAL
Aroclor-1248 [1]	ND	44	mg/Kg	500		SW-846 8082A	4/23/14	4/25/14 10:25	KAL
Aroclor-1254 [2]	390	44	mg/Kg	500		SW-846 8082A	4/23/14	4/25/14 10:25	KAL
Aroclor-1260 [2]	45	44	mg/Kg	500		SW-846 8082A	4/23/14	4/25/14 10:25	KAL
Aroclor-1262 [1]	ND	44	mg/Kg	500		SW-846 8082A	4/23/14	4/25/14 10:25	KAL
Aroclor-1268 [1]	ND	44	mg/Kg	500		SW-846 8082A	4/23/14	4/25/14 10:25	KAL
Surrogates	% Recovery	Recovery Limits			Flag/Qual				
Decachlorobiphenyl [1]	*	30-150			S-01			4/25/14 10:25	
Decachlorobiphenyl [2]	*	30-150			S-01			4/25/14 10:25	
Tetrachloro-m-xylene [1]	*	30-150			S-01			4/25/14 10:25	
Tetrachloro-m-xylene [2]	*	30-150			S-01			4/25/14 10:25	

Sample Extraction Data

Prep Method: SW-846 3540C-SW-846 8082A

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
14D0846-02 [WJH-VBC-049]	B094347	2.11	10.0	04/23/14
14D0846-03 [WJH-VBC-050]	B094347	1.04	5.00	04/23/14
14D0846-04 [WJH-VBC-051]	B094347	2.01	10.0	04/23/14
14D0846-05 [WJH-VBCD-052]	B094347	2.29	10.0	04/23/14

Prep Method: SW-846 3510C-SW-846 8082A

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
14D0846-01 [WJH-VBCQ-053]	B094320	1000	10.0	04/23/14

QUALITY CONTROL
Polychlorinated Biphenyls By GC/ECD - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B094320 - SW-846 3510C										
Blank (B094320-BLK1)										
Prepared & Analyzed: 04/23/14										
Aroclor-1016	ND	0.20	µg/L							
Aroclor-1016 [2C]	ND	0.20	µg/L							
Aroclor-1221	ND	0.20	µg/L							
Aroclor-1221 [2C]	ND	0.20	µg/L							
Aroclor-1232	ND	0.20	µg/L							
Aroclor-1232 [2C]	ND	0.20	µg/L							
Aroclor-1242	ND	0.20	µg/L							
Aroclor-1242 [2C]	ND	0.20	µg/L							
Aroclor-1248	ND	0.20	µg/L							
Aroclor-1248 [2C]	ND	0.20	µg/L							
Aroclor-1254	ND	0.20	µg/L							
Aroclor-1254 [2C]	ND	0.20	µg/L							
Aroclor-1260	ND	0.20	µg/L							
Aroclor-1260 [2C]	ND	0.20	µg/L							
Aroclor-1262	ND	0.20	µg/L							
Aroclor-1262 [2C]	ND	0.20	µg/L							
Aroclor-1268	ND	0.20	µg/L							
Aroclor-1268 [2C]	ND	0.20	µg/L							
Surrogate: Decachlorobiphenyl	1.73		µg/L	2.00		86.4	30-150			
Surrogate: Decachlorobiphenyl [2C]	2.02		µg/L	2.00		101	30-150			
Surrogate: Tetrachloro-m-xylene	1.48		µg/L	2.00		74.0	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	1.64		µg/L	2.00		81.8	30-150			
LCS (B094320-BS1)										
Prepared & Analyzed: 04/23/14										
Aroclor-1016	0.48	0.20	µg/L	0.500		95.5	40-140			
Aroclor-1016 [2C]	0.50	0.20	µg/L	0.500		99.8	40-140			
Aroclor-1260	0.47	0.20	µg/L	0.500		94.7	40-140			
Aroclor-1260 [2C]	0.50	0.20	µg/L	0.500		99.5	40-140			
Surrogate: Decachlorobiphenyl	1.79		µg/L	2.00		89.3	30-150			
Surrogate: Decachlorobiphenyl [2C]	2.07		µg/L	2.00		103	30-150			
Surrogate: Tetrachloro-m-xylene	1.58		µg/L	2.00		78.9	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	1.74		µg/L	2.00		86.8	30-150			
LCS Dup (B094320-BSD1)										
Prepared & Analyzed: 04/23/14										
Aroclor-1016	0.50	0.20	µg/L	0.500		101	40-140	5.22	20	
Aroclor-1016 [2C]	0.53	0.20	µg/L	0.500		106	40-140	5.60	20	
Aroclor-1260	0.49	0.20	µg/L	0.500		98.1	40-140	3.54	20	
Aroclor-1260 [2C]	0.52	0.20	µg/L	0.500		104	40-140	4.05	20	
Surrogate: Decachlorobiphenyl	1.83		µg/L	2.00		91.5	30-150			
Surrogate: Decachlorobiphenyl [2C]	2.12		µg/L	2.00		106	30-150			
Surrogate: Tetrachloro-m-xylene	1.61		µg/L	2.00		80.4	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	1.77		µg/L	2.00		88.7	30-150			

QUALITY CONTROL
Polychlorinated Biphenyls with 3540 Soxhlet Extraction - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B094347 - SW-846 3540C
Blank (B094347-BLK1)

Prepared: 04/23/14 Analyzed: 04/24/14

Aroclor-1016	ND	0.10	mg/Kg							
Aroclor-1016 [2C]	ND	0.10	mg/Kg							
Aroclor-1221	ND	0.10	mg/Kg							
Aroclor-1221 [2C]	ND	0.10	mg/Kg							
Aroclor-1232	ND	0.10	mg/Kg							
Aroclor-1232 [2C]	ND	0.10	mg/Kg							
Aroclor-1242	ND	0.10	mg/Kg							
Aroclor-1242 [2C]	ND	0.10	mg/Kg							
Aroclor-1248	ND	0.10	mg/Kg							
Aroclor-1248 [2C]	ND	0.10	mg/Kg							
Aroclor-1254	ND	0.10	mg/Kg							
Aroclor-1254 [2C]	ND	0.10	mg/Kg							
Aroclor-1260	ND	0.10	mg/Kg							
Aroclor-1260 [2C]	ND	0.10	mg/Kg							
Aroclor-1262	ND	0.10	mg/Kg							
Aroclor-1262 [2C]	ND	0.10	mg/Kg							
Aroclor-1268	ND	0.10	mg/Kg							
Aroclor-1268 [2C]	ND	0.10	mg/Kg							
Surrogate: Decachlorobiphenyl	0.830		mg/Kg	1.00		83.0	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.810		mg/Kg	1.00		81.0	30-150			
Surrogate: Tetrachloro-m-xylene	0.837		mg/Kg	1.00		83.7	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.919		mg/Kg	1.00		91.9	30-150			

LCS (B094347-BS1)

Prepared: 04/23/14 Analyzed: 04/24/14

Aroclor-1016	0.21	0.10	mg/Kg	0.250		82.2	40-140			
Aroclor-1016 [2C]	0.22	0.10	mg/Kg	0.250		89.0	40-140			
Aroclor-1260	0.20	0.10	mg/Kg	0.250		79.7	40-140			
Aroclor-1260 [2C]	0.22	0.10	mg/Kg	0.250		89.7	40-140			
Surrogate: Decachlorobiphenyl	0.780		mg/Kg	1.00		78.0	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.758		mg/Kg	1.00		75.8	30-150			
Surrogate: Tetrachloro-m-xylene	0.791		mg/Kg	1.00		79.1	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.868		mg/Kg	1.00		86.8	30-150			

LCS Dup (B094347-BSD1)

Prepared: 04/23/14 Analyzed: 04/24/14

Aroclor-1016	0.24	0.10	mg/Kg	0.250		94.4	40-140	13.8	30	
Aroclor-1016 [2C]	0.26	0.10	mg/Kg	0.250		103	40-140	14.6	30	
Aroclor-1260	0.25	0.10	mg/Kg	0.250		98.1	40-140	20.7	30	
Aroclor-1260 [2C]	0.29	0.10	mg/Kg	0.250		116	40-140	26.0	30	
Surrogate: Decachlorobiphenyl	0.860		mg/Kg	1.00		86.0	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.840		mg/Kg	1.00		84.0	30-150			
Surrogate: Tetrachloro-m-xylene	0.861		mg/Kg	1.00		86.1	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.942		mg/Kg	1.00		94.2	30-150			

FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
	No results have been blank subtracted unless specified in the case narrative section.
O-03	Sample contains two incompletely resolved aroclors. Aroclor with the closest matching pattern is reported.
S-01	The surrogate recovery for this sample is not available due to sample dilution below the surrogate reporting limit required from high analyte concentration and/or matrix interferences.

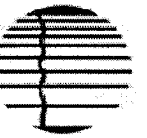
CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
<i>SW-846 8082A in Product/Solid</i>	
Aroclor-1016	CT,NH,NY,ME,NC,VA,NJ
Aroclor-1016 [2C]	CT,NH,NY,ME,NC,VA,NJ
Aroclor-1221	CT,NH,NY,ME,NC,VA,NJ
Aroclor-1221 [2C]	CT,NH,NY,ME,NC,VA,NJ
Aroclor-1232	CT,NH,NY,ME,NC,VA,NJ
Aroclor-1232 [2C]	CT,NH,NY,ME,NC,VA,NJ
Aroclor-1242	CT,NH,NY,ME,NC,VA,NJ
Aroclor-1242 [2C]	CT,NH,NY,ME,NC,VA,NJ
Aroclor-1248	CT,NH,NY,ME,NC,VA,NJ
Aroclor-1248 [2C]	CT,NH,NY,ME,NC,VA,NJ
Aroclor-1254	CT,NH,NY,ME,NC,VA,NJ
Aroclor-1254 [2C]	CT,NH,NY,ME,NC,VA,NJ
Aroclor-1260	CT,NH,NY,ME,NC,VA,NJ
Aroclor-1260 [2C]	CT,NH,NY,ME,NC,VA,NJ
<i>SW-846 8082A in Water</i>	
Aroclor-1016	CT,NH,NY,NC,ME,VA,NJ
Aroclor-1016 [2C]	CT,NH,NY,NC,ME,VA,NJ
Aroclor-1221	CT,NH,NY,NC,ME,VA,NJ
Aroclor-1221 [2C]	CT,NH,NY,NC,ME,VA,NJ
Aroclor-1232	CT,NH,NY,NC,ME,VA,NJ
Aroclor-1232 [2C]	CT,NH,NY,NC,ME,VA,NJ
Aroclor-1242	CT,NH,NY,NC,ME,VA,NJ
Aroclor-1242 [2C]	CT,NH,NY,NC,ME,VA,NJ
Aroclor-1248	CT,NH,NY,NC,ME,VA,NJ
Aroclor-1248 [2C]	CT,NH,NY,NC,ME,VA,NJ
Aroclor-1254	CT,NH,NY,NC,ME,VA,NJ
Aroclor-1254 [2C]	CT,NH,NY,NC,ME,VA,NJ
Aroclor-1260	CT,NH,NY,NC,ME,VA,NJ
Aroclor-1260 [2C]	CT,NH,NY,NC,ME,VA,NJ
Aroclor-1262	NC
Aroclor-1262 [2C]	NC
Aroclor-1268	NC
Aroclor-1268 [2C]	NC

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC	100033	02/1/2016
MA	Massachusetts DEP	M-MA100	06/30/2014
CT	Connecticut Department of Public Health	PH-0567	09/30/2015
NY	New York State Department of Health	10899 NELAP	04/1/2015
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2015
RI	Rhode Island Department of Health	LAO00112	12/30/2014
NC	North Carolina Div. of Water Quality	652	12/31/2014
NJ	New Jersey DEP	MA007 NELAP	06/30/2014
FL	Florida Department of Health	E871027 NELAP	06/30/2014
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2014
WA	State of Washington Department of Ecology	C2065	02/23/2015
ME	State of Maine	2011028	06/9/2015
VA	Commonwealth of Virginia	460217	12/14/2014
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2014



con-test
ANALYTICAL LABORATORY

Phone: 413-525-2332
Fax: 413-525-6405
Email: info@contestlabs.com
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CHAIN OF CUSTODY RECORD

39 Spruce Street
East Longmeadow, MA 01028

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Rev 04.05.12

Company Name: Woodward & Curran
Address: 410 Shattuck Rd
City: Andover MA

Project # 220574
Client PO# DATA DELIVERY
(check all that apply)
☐ FAX ☐ EMAIL ☐ WEBSITE

Attention: AMY MARTIN
Project Location: William James Hall - HAN
Sampled By: Jill Russell

Project # 220574
Client PO# DATA DELIVERY
(check all that apply)
☐ FAX ☐ EMAIL ☐ WEBSITE
Fax # 978-235-0000
Email: amartin@curran.com

Project Proposal Provided? (for billing purposes)
☐ Yes ☐ No

Format: ☒ PDF ☐ EXCEL ☐ GIS
☐ OTHER

Con-Test Lab ID (Laboratory use only)	Client Sample ID / Description	Beginning Date/Time	Ending Date/Time	Composite	Grab	*Matrix	Lab Code
01	W3H-VBC0-053	4/22/14	1340		X	Water	V
02	W3H-VBC-049	4/21/14	6710	X		Water	V
03	W3H-VBC-050	4/21/14	0720	X		Water	V
04	W3H-VBC-051	4/21/14	0730	X		Water	V
05	W3H-VBC0-052	4/21/14	0732	X		Water	V

Please use the following codes to let Con-Test know if a specific sample may be high in concentration in Matrix/Conc. Code Box:

H - High; M - Medium; L - Low; C - Clean; U - Unknown

ANALYSIS REQUESTED

Dissolved Metals

☐ Field Filtered
☐ Lab to Filter

**Cont. Code:

A=amber glass
G=glass
P=plastic
ST=sterile
V=vial
S=summary can
T=tetradar bag
O=Other

**Preservation

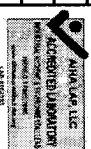
I = Iced
H = HCL
M = Methanol
N = Nitric Acid
S = Sulfuric Acid
B = Sodium bisulfate
X = Na hydroxide
T = Na thiosulfate
O = Other

*Matrix Code:

GW= groundwater
WW= wastewater
DW= drinking water
A= air
S= soil/solid
SL= sludge
O= other

Is your project MCP or RCP?

☒ MCP Form Required
☐ RCP Form Required
☐ MA State DW Form Required



NEALAC & AHA-LAP, LLC
Accredited
WBE/DBE Certified

Relinquished by: (signature) [Signature] Date/Time: 4/22/14 15:30
Received by: (signature) [Signature] Date/Time: 4/22/14 18:30
Relinquished by: (signature) [Signature] Date/Time: 4/22/14 18:30
Received by: (signature) [Signature] Date/Time: 4/22/14 18:30

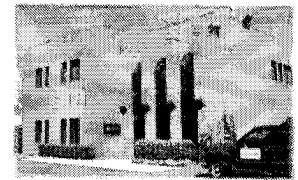
Turnaround Time: 7-Day
Require lab approval ☐ 72-Hr ☐ 14-Day
Other: MA State DW Form Required

Turnaround Time Starts at 9:00 A.M. THE DAY AFTER SAMPLE RECEIPT UNLESS THERE ARE QUESTIONS ON YOUR CHAIN. IF THIS FORM IS NOT FILLED OUT COMPLETELY OR IS INCORRECT, TURNAROUND TIME WILL NOT START UNTIL ALL QUESTIONS ARE ANSWERED BY OUR CLIENT.

39 Spruce St.
East Longmeadow, MA. 01028
P: 413-525-2332
F: 413-525-6405
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Page 1 of 2



Sample Receipt Checklist

CLIENT NAME: Woodard + Curran RECEIVED BY: MT DATE: 4/22/14

1) Was the chain(s) of custody relinquished and signed? Yes No No CoC Included

2) Does the chain agree with the samples?

Yes No

If not, explain:

3) Are all the samples in good condition?

Yes No

If not, explain:

4) How were the samples received:

On Ice ☒ Direct from Sampling ☐ Ambient ☐ In Cooler(s) ☒

Were the samples received in Temperature Compliance of (2-6°C)? Yes No N/A

Temperature °C by Temp blank _____ Temperature °C by Temp gun 2.7°C

5) Are there Dissolved samples for the lab to filter?

Yes No

Who was notified _____ Date _____ Time _____

6) Are there any RUSH or SHORT HOLDING TIME samples?

Yes No

Who was notified _____ Date _____ Time _____

7) Location where samples are stored:

19

Permission to subcontract samples? Yes No
(Walk-in clients only) if not already approved
Client Signature: _____

8) Do all samples have the proper Acid pH: Yes No N/A

9) Do all samples have the proper Base pH: Yes No N/A

10) Was the PC notified of any discrepancies with the CoC vs the samples: Yes No N/A

Containers received at Con-Test

	# of containers		# of containers
1 Liter Amber	<u>1</u>	8 oz amber/clear jar	
500 mL Amber		4 oz amber/clear jar	<u>4A</u>
250 mL Amber (8oz amber)		2 oz amber/clear jar	
1 Liter Plastic		Plastic Bag / Ziploc	
500 mL Plastic		SOC Kit	
250 mL plastic		Non-ConTest Container	
40 mL Vial - type listed below		Perchlorate Kit	
Colisure / bacteria bottle		Flashpoint bottle	
Dissolved Oxygen bottle		Other glass jar	
Encore		Other	

Laboratory Comments:

40 mL vials: # HCl _____ # Methanol _____

Doc# 277 # Bisulfate _____ # DI Water _____

Rev. 4 August 2013 # Thiosulfate _____ Unpreserved _____

Time and Date Frozen:

Login Sample Receipt Checklist**(Rejection Criteria Listing - Using Sample Acceptance Policy)****Any False statement will be brought to the attention of Client**

Question	Answer (True/False)	Comment
	T/F/NA	
1) The cooler's custody seal, if present, is intact.	T	
2) The cooler or samples do not appear to have been compromised or tampered with.	T	
3) Samples were received on ice.	T	
4) Cooler Temperature is acceptable.	T	
5) Cooler Temperature is recorded.	T	
6) COC is filled out in ink and legible.	T	
7) COC is filled out with all pertinent information.	T	
8) Field Sampler's name present on COC.	T	
9) There are no discrepancies between the sample IDs on the container and the COC.	T	
10) Samples are received within Holding Time.	T	
11) Sample containers have legible labels.	T	
12) Containers are not broken or leaking.	T	
13) Air Cassettes are not broken/open.	NA	
14) Sample collection date/times are provided.	T	
15) Appropriate sample containers are used.	T	
16) Proper collection media used.	T	
17) No headspace sample bottles are completely filled.	T	
18) There is sufficient volume for all requested analyses, including any requested MS/MSDs.	T	
19) Trip blanks provided if applicable.	T	
20) VOA sample vials do not have head space or bubble is <6mm (1/4") in diameter.	T	
21) Samples do not require splitting or compositing.	T	

Doc #277 Rev. 4 August 2013

Who notified of False statements?

Log-In Technician Initials:

Date/Time:

Date/Time:

MT 4/22/14 18:30

14D0846-01 WJH-VBCQ-053

Analyte	Results		%RPD
Surrogates			
Tetrachloro-m-xylene	1.44	1.56501	8.32
Decachlorobiphenyl	1.71	1.69974	0.602

14D0846-02 WJH-VBC-049

Analyte	Results		%RPD
Aroclor-1254 [2C]	390	361.1166	7.69

14D0846-03 WJH-VBC-050

Analyte	Results		%RPD
Aroclor-1254 [2C]	46	46.17483	0.379
Aroclor-1260 [2C]	9.8	9.456292	3.57

14D0846-04 WJH-VBC-051

Analyte	Results		%RPD
Aroclor-1254 [2C]	480	471.8632	1.71
Aroclor-1260 [2C]	55	50.5597	8.41

14D0846-05 WJH-VBCD-052

Analyte	Results		%RPD
Aroclor-1254 [2C]	390	384.3329	1.46
Aroclor-1260 [2C]	45	41.79571	7.38

B094320-BLK1 Blank

Analyte	Results		%RPD
Surrogates			
Decachlorobiphenyl	1.73	2.0187	15.4
Tetrachloro-m-xylene	1.48	1.63572	10

B094320-BS1 LCS

Analyte	Results		%RPD
Aroclor-1016	0.48	0.49887	3.86
Aroclor-1260	0.47	0.49764	5.71
Surrogates			
Tetrachloro-m-xylene	1.58	1.73617	9.42
Decachlorobiphenyl	1.79	2.06828	14.4

B094320-BSD1 LCS Dup

Analyte	Results		%RPD
Aroclor-1260	0.49	0.51822	5.6
Aroclor-1016	0.50	0.52762	5.38
Surrogates			
Decachlorobiphenyl	1.83	2.12009	14.7
Tetrachloro-m-xylene	1.61	1.77472	9.73

B094347-BLK1 Blank

Analyte	Results		%RPD
Surrogates			
Decachlorobiphenyl	0.830	0.809635	2.48
Tetrachloro-m-xylene	0.837	0.91938	9.38

B094347-BS1 LCS

Analyte	Results		%RPD
Aroclor-1016	0.21	0.222545	5.8
Aroclor-1260	0.20	0.224205	11.4
Surrogates			
Decachlorobiphenyl	0.780	0.75796	2.87
Tetrachloro-m-xylene	0.791	0.86848	9.34

Analyte	Results		%RPD
Aroclor-1016	0.24	0.25747	7.02
Aroclor-1260	0.25	0.291225	15.2
Surrogates			
Tetrachloro-m-xylene	0.861	0.941825	8.97
Decachlorobiphenyl	0.860	0.839935	2.36

MADEP MCP Analytical Method Report Certification Form

Laboratory Name: Con-Test Analytical Laboratory	Project #: 14D0846
Project Location: William James Hall - Harvard	RTN:

This Form provides certifications for the following data set: [list Laboratory Sample ID Number(s)]

14D0846-01 thru 14D0846-05

Matrices: Product/Solid Water

CAM Protocol (check all that below)

8260 VOC CAM II A ()	7470/7471 Hg CAM IIIB ()	MassDEP VPH CAM IV A ()	8081 Pesticides CAM V B ()	7196 Hex Cr CAM VI B ()	MassDEP APH CAM IX A ()
8270 SVOC CAM II B ()	7010 Metals CAM III C ()	MassDEP EPH CAM IV A ()	8151 Herbicides CAM V C ()	8330 Explosives CAM VIII A ()	TO-15 VOC CAM IX B ()
6010 Metals CAM III A ()	6020 Metals CAM III D ()	8082 PCB CAM V A (X)	9014 Total Cyanide/PAC CAM VI A ()	6860 Perchlorate CAM VIII B ()	

Affirmative response to Questions A through F is required for "Presumptive Certainty" status

A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹
E a	VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications).	<input type="checkbox"/> Yes <input type="checkbox"/> No ¹
E b	APH and TO-15 Methods only: Was the complete analyte list reported for each method?	<input type="checkbox"/> Yes <input type="checkbox"/> No ¹
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all No responses to Questions A through E)?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹

A response to questions G, H and I below is required for "Presumptive Certainty" status

G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹
----------	---	--

Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.

H	Were all QC performance standards specified in the CAM protocol(s) achieved?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No ¹
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹

¹ All Negative responses must be addressed in an attached Environmental Laboratory case narrative.

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: <u>Michael A. Erickson</u> Printed Name: Michael A. Erickson	Position: Laboratory Director Date: 04/29/14
--	---

May 7, 2014

Amy Martin
Woodard & Curran - Andover, MA
40 Shattuck Road., Suite 110
Andover, MA 01810

Project Location: Harvard - William James Hall
Client Job Number:
Project Number: 226574
Laboratory Work Order Number: 14D1190

Enclosed are results of analyses for samples received by the laboratory on April 30, 2014. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Meghan E. Kelley
Project Manager

Woodard & Curran - Andover, MA
40 Shattuck Road., Suite 110
Andover, MA 01810
ATTN: Amy Martin

REPORT DATE: 5/7/2014

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 226574

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 14D1190

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: Harvard - William James Hall

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
WJH-VWE-057	14D1190-01	Wipe		SW-846 8082A	
WJH-VWE-059	14D1190-02	Wipe		SW-846 8082A	
WJH-VWE-061	14D1190-03	Wipe		SW-846 8082A	

CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.

I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

A handwritten signature in black ink, appearing to read "Daren J. Damboragian", is written over a light gray rectangular background.

Daren J. Damboragian
Laboratory Manager

Project Location: Harvard - William James Hall

Sample Description:

Work Order: 14D1190

Date Received: 4/30/2014

Field Sample #: WJH-VWE-057

Sampled: 4/22/2014 12:10

Sample ID: 14D1190-01

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	5/1/14	5/3/14 10:26	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	5/1/14	5/3/14 10:26	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	5/1/14	5/3/14 10:26	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	5/1/14	5/3/14 10:26	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	5/1/14	5/3/14 10:26	KAL
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	5/1/14	5/3/14 10:26	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	5/1/14	5/3/14 10:26	KAL
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	5/1/14	5/3/14 10:26	KAL
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	5/1/14	5/3/14 10:26	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	113	30-150							
Decachlorobiphenyl [2]	102	30-150							
Tetrachloro-m-xylene [1]	100	30-150							
Tetrachloro-m-xylene [2]	94.3	30-150							

Project Location: Harvard - William James Hall

Sample Description:

Work Order: 14D1190

Date Received: 4/30/2014

Field Sample #: WJH-VWE-059

Sampled: 4/22/2014 12:35

Sample ID: 14D1190-02

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	5/1/14	5/3/14 10:38	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	5/1/14	5/3/14 10:38	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	5/1/14	5/3/14 10:38	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	5/1/14	5/3/14 10:38	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	5/1/14	5/3/14 10:38	KAL
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	5/1/14	5/3/14 10:38	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	5/1/14	5/3/14 10:38	KAL
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	5/1/14	5/3/14 10:38	KAL
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	5/1/14	5/3/14 10:38	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	104	30-150						5/3/14 10:38	
Decachlorobiphenyl [2]	94.3	30-150						5/3/14 10:38	
Tetrachloro-m-xylene [1]	97.0	30-150						5/3/14 10:38	
Tetrachloro-m-xylene [2]	92.5	30-150						5/3/14 10:38	

Project Location: Harvard - William James Hall

Sample Description:

Work Order: 14D1190

Date Received: 4/30/2014

Field Sample #: WJH-VWE-061

Sampled: 4/22/2014 12:45

Sample ID: 14D1190-03

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	5/1/14	5/3/14 10:50	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	5/1/14	5/3/14 10:50	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	5/1/14	5/3/14 10:50	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	5/1/14	5/3/14 10:50	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	5/1/14	5/3/14 10:50	KAL
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	5/1/14	5/3/14 10:50	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	5/1/14	5/3/14 10:50	KAL
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	5/1/14	5/3/14 10:50	KAL
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	5/1/14	5/3/14 10:50	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	107	30-150						5/3/14 10:50	
Decachlorobiphenyl [2]	96.8	30-150						5/3/14 10:50	
Tetrachloro-m-xylene [1]	101	30-150						5/3/14 10:50	
Tetrachloro-m-xylene [2]	95.5	30-150						5/3/14 10:50	

Sample Extraction Data

Prep Method: SW-846 3540C-SW-846 8082A

Lab Number [Field ID]	Batch	Initial [Wipe]	Final [mL]	Date
14D1190-01 [WJH-VWE-057]	B094918	1.00	10.0	05/01/14
14D1190-02 [WJH-VWE-059]	B094918	1.00	10.0	05/01/14
14D1190-03 [WJH-VWE-061]	B094918	1.00	10.0	05/01/14

QUALITY CONTROL
Polychlorinated Biphenyls with 3540 Soxhlet Extraction - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

Batch B094918 - SW-846 3540C
Blank (B094918-BLK1)

Prepared: 05/01/14 Analyzed: 05/03/14

Aroclor-1016	ND	0.20	µg/Wipe							
Aroclor-1016 [2C]	ND	0.20	µg/Wipe							
Aroclor-1221	ND	0.20	µg/Wipe							
Aroclor-1221 [2C]	ND	0.20	µg/Wipe							
Aroclor-1232	ND	0.20	µg/Wipe							
Aroclor-1232 [2C]	ND	0.20	µg/Wipe							
Aroclor-1242	ND	0.20	µg/Wipe							
Aroclor-1242 [2C]	ND	0.20	µg/Wipe							
Aroclor-1248	ND	0.20	µg/Wipe							
Aroclor-1248 [2C]	ND	0.20	µg/Wipe							
Aroclor-1254	ND	0.20	µg/Wipe							
Aroclor-1254 [2C]	ND	0.20	µg/Wipe							
Aroclor-1260	ND	0.20	µg/Wipe							
Aroclor-1260 [2C]	ND	0.20	µg/Wipe							
Aroclor-1262	ND	0.20	µg/Wipe							
Aroclor-1262 [2C]	ND	0.20	µg/Wipe							
Aroclor-1268	ND	0.20	µg/Wipe							
Aroclor-1268 [2C]	ND	0.20	µg/Wipe							
Surrogate: Decachlorobiphenyl	2.07		µg/Wipe	2.00		104	30-150			
Surrogate: Decachlorobiphenyl [2C]	1.89		µg/Wipe	2.00		94.6	30-150			
Surrogate: Tetrachloro-m-xylene	1.87		µg/Wipe	2.00		93.6	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	1.76		µg/Wipe	2.00		88.2	30-150			

LCS (B094918-BS1)

Prepared: 05/01/14 Analyzed: 05/03/14

Aroclor-1016	0.45	0.20	µg/Wipe	0.500		89.1	40-140			
Aroclor-1016 [2C]	0.43	0.20	µg/Wipe	0.500		85.3	40-140			
Aroclor-1260	0.45	0.20	µg/Wipe	0.500		90.3	40-140			
Aroclor-1260 [2C]	0.43	0.20	µg/Wipe	0.500		86.1	40-140			
Surrogate: Decachlorobiphenyl	1.94		µg/Wipe	2.00		97.1	30-150			
Surrogate: Decachlorobiphenyl [2C]	1.78		µg/Wipe	2.00		88.9	30-150			
Surrogate: Tetrachloro-m-xylene	1.81		µg/Wipe	2.00		90.6	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	1.72		µg/Wipe	2.00		86.0	30-150			

LCS Dup (B094918-BSD1)

Prepared: 05/01/14 Analyzed: 05/03/14

Aroclor-1016	0.47	0.20	µg/Wipe	0.500		94.6	40-140	5.90	30	
Aroclor-1016 [2C]	0.46	0.20	µg/Wipe	0.500		91.4	40-140	6.81	30	
Aroclor-1260	0.48	0.20	µg/Wipe	0.500		96.0	40-140	6.07	30	
Aroclor-1260 [2C]	0.45	0.20	µg/Wipe	0.500		90.1	40-140	4.53	30	
Surrogate: Decachlorobiphenyl	2.00		µg/Wipe	2.00		100	30-150			
Surrogate: Decachlorobiphenyl [2C]	1.81		µg/Wipe	2.00		90.4	30-150			
Surrogate: Tetrachloro-m-xylene	1.85		µg/Wipe	2.00		92.3	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	1.74		µg/Wipe	2.00		87.1	30-150			

FLAG/QUALIFIER SUMMARY

- * QC result is outside of established limits.
- † Wide recovery limits established for difficult compound.
- ‡ Wide RPD limits established for difficult compound.
- # Data exceeded client recommended or regulatory level

Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.

No results have been blank subtracted unless specified in the case narrative section.

CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
---------	----------------

No certified Analyses included in this Report

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC	100033	02/1/2016
MA	Massachusetts DEP	M-MA100	06/30/2014
CT	Connecticut Department of Public Health	PH-0567	09/30/2015
NY	New York State Department of Health	10899 NELAP	04/1/2015
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2015
RI	Rhode Island Department of Health	LAO00112	12/30/2014
NC	North Carolina Div. of Water Quality	652	12/31/2014
NJ	New Jersey DEP	MA007 NELAP	06/30/2014
FL	Florida Department of Health	E871027 NELAP	06/30/2014
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2014
WA	State of Washington Department of Ecology	C2065	02/23/2015
ME	State of Maine	2011028	06/9/2015
VA	Commonwealth of Virginia	460217	12/14/2014
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2014



con-test
ANALYTICAL LABORATORY

Phone: 413-525-2332
Fax: 413-525-6405
Email: info@contestlabs.com
www.contestlabs.com

CHAIN OF CUSTODY RECORD

39 Spruce Street
East Longmeadow, MA 01028

Page 1 of 1

Company Name: Woodward & Curran

Telephone: 226 579

Address: 40 Shattuck Rd

Project # 226579

Attention: Amy Martin

Client PO#

DATA DELIVERY (check all that apply)

☐ FAX ☒ EMAIL ☐ WEBSITE

Project Location: Harvard - William James Hall

Fax # 226 579

Sampled By: Jill Russell

Email: jrussell@woodwardcurran.com

Project Proposal Provided? (for billing purposes)

☐ Yes ☐ No

Format: ☒ PDF ☐ EXCEL ☐ GIS
☐ OTHER

☐ "Enhanced Data Package"

Con-Test Lab ID

Client Sample ID / Description

Beginning Date/Time

Ending Date/Time

Composite

Grab

*Matrix Date

Matrix Date

Matrix Date

Matrix Date

Matrix Date

01 WSH-VWE-057

4/22/14 1210

X

X

X

X

X

X

X

X

X

02 WSH-VWE-059

4/22/14 1235

X

X

X

X

X

X

X

X

X

03 WSH-VWE-061

4/22/14 1245

X

X

X

X

X

X

X

X

X

Comments:

PCBs 8082 Soxhlet

Relinquished by: (signature) [Signature]

Date/Time: 4/30/14

Turnaround ☐ 7-Day ☒ 10-Day ☐ Other Soxhlet

Detection Limit Requirements

Is your project MCP or RCP? ☒ MCP Form Required ☐ RCP Form Required ☐ MA State DW Form Required PWSID #

NEIAC & AIHA-LAP, LLC Accredited WBE/DBE Certified

Received by: (signature) [Signature]

Date/Time: 4/30/14

Turnaround ☐ 7-Day ☒ 10-Day ☐ Other Soxhlet

Detection Limit Requirements

Is your project MCP or RCP? ☒ MCP Form Required ☐ RCP Form Required ☐ MA State DW Form Required PWSID #

NEIAC & AIHA-LAP, LLC Accredited WBE/DBE Certified

Relinquished by: (signature) [Signature]

Date/Time: 4/30/14

Turnaround ☐ 7-Day ☒ 10-Day ☐ Other Soxhlet

Detection Limit Requirements

Is your project MCP or RCP? ☒ MCP Form Required ☐ RCP Form Required ☐ MA State DW Form Required PWSID #

NEIAC & AIHA-LAP, LLC Accredited WBE/DBE Certified

Received by: (signature) [Signature]

Date/Time: 4/30/14

Turnaround ☐ 7-Day ☒ 10-Day ☐ Other Soxhlet

Detection Limit Requirements

Is your project MCP or RCP? ☒ MCP Form Required ☐ RCP Form Required ☐ MA State DW Form Required PWSID #

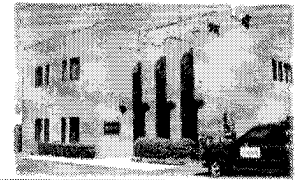
NEIAC & AIHA-LAP, LLC Accredited WBE/DBE Certified

TURNAROUND TIME STARTS AT 9:00 A.M. THE DAY AFTER SAMPLE RECEIPT UNLESS THERE ARE QUESTIONS ON YOUR CHAIN. IF THIS FORM IS NOT FILLED OUT COMPLETELY OR IS INCORRECT, TURNAROUND TIME WILL NOT START UNTIL ALL QUESTIONS ARE ANSWERED BY OUR CLIENT. PLEASE BE CAREFUL NOT TO CONTAMINATE THIS DOCUMENT.

39 Spruce St.
East Longmeadow, MA. 01028
P: 413-525-2332
F: 413-525-6405
www.contestlabs.com



Page 1 of 2



Sample Receipt Checklist

CLIENT NAME: Woodard + Curran RECEIVED BY: PR DATE: 4.30.14

- 1) Was the chain(s) of custody relinquished and signed? ☒ Yes ☐ No No CoC Included
- 2) Does the chain agree with the samples? ☒ Yes ☐ No
If not, explain:
- 3) Are all the samples in good condition? ☒ Yes ☐ No
If not, explain:

4) How were the samples received:

On Ice ☒ Direct from Sampling ☐ Ambient ☐ In Cooler(s) ☒

Were the samples received in Temperature Compliance of (2-6°C)? ☒ Yes ☐ No N/A

Temperature °C by Temp blank _____ Temperature °C by Temp gun 4.7

5) Are there Dissolved samples for the lab to filter? Yes ☐ No ☒

Who was notified _____ Date _____ Time _____

6) Are there any RUSH or SHORT HOLDING TIME samples? Yes ☐ No ☒

Who was notified _____ Date _____ Time _____

7) Location where samples are stored:

Log in

Permission to subcontract samples? Yes No
(Walk-in clients only) if not already approved
Client Signature: _____

8) Do all samples have the proper Acid pH: Yes No ☒ N/A

9) Do all samples have the proper Base pH: Yes No ☒ N/A

10) Was the PC notified of any discrepancies with the CoC vs the samples: Yes No ☒ N/A

Containers received at Con-Test

	# of containers		# of containers
1 Liter Amber		8 oz amber/clear jar	
500 mL Amber		4 oz amber/clear jar	3
250 mL Amber (8oz amber)		2 oz amber/clear jar	
1 Liter Plastic		Plastic Bag / Ziploc	
500 mL Plastic		SOC Kit	
250 mL plastic		Non-ConTest Container	
40 mL Vial - type listed below		Perchlorate Kit	
Colisure / bacteria bottle		Flashpoint bottle	
Dissolved Oxygen bottle		Other glass jar	
Encore		Other	

Laboratory Comments:

40 mL vials: # HCl _____ # Methanol _____	Time and Date Frozen: _____
Doc# 277 # Bisulfate _____ # DI Water _____	
Rev. 4 August 2013 # Thiosulfate _____ Unpreserved _____	

Login Sample Receipt Checklist
(Rejection Criteria Listing - Using Sample Acceptance Policy)
Any False statement will be brought to the attention of Client

<u>Question</u>	<u>Answer (True/False)</u>	<u>Comment</u>
	T/F/NA	
1) The cooler's custody seal, if present, is intact.	NA	
2) The cooler or samples do not appear to have been compromised or tampered with.	T	
3) Samples were received on ice.	T	
4) Cooler Temperature is acceptable.	T	
5) Cooler Temperature is recorded.	T	
6) COC is filled out in ink and legible.	T	
7) COC is filled out with all pertinent information.	T	
8) Field Sampler's name present on COC.	T	
9) There are no discrepancies between the sample IDs on the container and the COC.	T	
10) Samples are received within Holding Time.	T	
11) Sample containers have legible labels.	T	
12) Containers are not broken or leaking.	T	
13) Air Cassettes are not broken/open.	NA	
14) Sample collection date/times are provided.	T	
15) Appropriate sample containers are used.	T	
16) Proper collection media used.	T	
17) No headspace sample bottles are completely filled.	NA	
18) There is sufficient volume for all requested analyses, including any requested MS/MSDs.	T	
19) Trip blanks provided if applicable.	NA	
20) VOA sample vials do not have head space or bubble is <6mm (1/4") in diameter.	NA	
21) Samples do not require splitting or compositing.	T	

Doc #277 Rev. 4 August 2013

Who notified of False statements?

Log-In Technician Initials: PB

Date/Time:

Date/Time: 4-30-14
17:40

MADEP MCP Analytical Method Report Certification Form

Laboratory Name: Con-Test Analytical Laboratory

Project #: 14D1190

Project Location: Harvard - William James Hall

RTN:

This Form provides certifications for the following data set: [list Laboratory Sample ID Number(s)]

14D1190-01 thru 14D1190-03

Matrices: Wipe

CAM Protocol (check all that below)

8260 VOC CAM II A ()	7470/7471 Hg CAM IIIB ()	MassDEP VPH CAM IV A ()	8081 Pesticides CAM V B ()	7196 Hex Cr CAM VI B ()	MassDEP APH CAM IX A ()
8270 SVOC CAM II B ()	7010 Metals CAM III C ()	MassDEP EPH CAM IV A ()	8151 Herbicides CAM V C ()	8330 Explosives CAM VIII A ()	TO-15 VOC CAM IX B ()
6010 Metals CAM III A ()	6020 Metals CAM III D ()	8082 PCB CAM V A (X)	9014 Total Cyanide/PAC CAM VI A ()	6860 Perchlorate CAM VIII B ()	

Affirmative response to Questions A through F is required for "Presumptive Certainty" status

A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹
E a	VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications).	<input type="checkbox"/> Yes <input type="checkbox"/> No ¹
E b	APH and TO-15 Methods only: Was the complete analyte list reported for each method?	<input type="checkbox"/> Yes <input type="checkbox"/> No ¹
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all No responses to Questions A through E)?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹

A response to questions G, H and I below is required for "Presumptive Certainty" status

G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No ¹
----------	---	--

Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.

H	Were all QC performance standards specified in the CAM protocol(s) achieved?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹

¹ All Negative responses must be addressed in an attached Environmental Laboratory case narrative.

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: 

Position: Laboratory Manager

Printed Name: Daren J. Damboragian

Date: 05/07/14

May 20, 2014

Amy Martin
Woodard & Curran - Andover, MA
40 Shattuck Road., Suite 110
Andover, MA 01810

Project Location: William James Hall - Harvard
Client Job Number:
Project Number: 226574
Laboratory Work Order Number: 14E0452

Enclosed are results of analyses for samples received by the laboratory on May 13, 2014. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Meghan E. Kelley
Project Manager

Woodard & Curran - Andover, MA
40 Shattuck Road., Suite 110
Andover, MA 01810
ATTN: Amy Martin

REPORT DATE: 5/20/2014

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 226574

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 14E0452

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: William James Hall - Harvard

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
WJH-VBC-080	14E0452-01	Product/Solid		SW-846 8082A	
WJH-VBC-081	14E0452-02	Product/Solid		SW-846 8082A	
WJH-VBC-082	14E0452-03	Product/Solid		SW-846 8082A	
WJH-VBC-083	14E0452-04	Product/Solid		SW-846 8082A	
WJH-VBC-084	14E0452-05	Product/Solid		SW-846 8082A	
WJH-VBC-085	14E0452-06	Product/Solid		SW-846 8082A	

CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

SW-846 8082A

Qualifications:

The surrogate recovery for this sample is not available due to sample dilution below the surrogate reporting limit required from high analyte concentration and/or matrix interferences.


Analyte & Samples(s) Qualified:

Decachlorobiphenyl, Decachlorobiphenyl [2C], Tetrachloro-m-xylene, Tetrachloro-m-xylene [2C]

14E0452-01[WJH-VBC-080], 14E0452-02[WJH-VBC-081], 14E0452-04[WJH-VBC-083], 14E0452-05[WJH-VBC-084]

The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.

I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.



Michael A. Erickson
Laboratory Director

Project Location: William James Hall - Harvard

Sample Description:

Work Order: 14E0452

Date Received: 5/13/2014

Field Sample #: WJH-VBC-080

Sampled: 5/13/2014 08:10

Sample ID: 14E0452-01

Sample Matrix: Product/Solid

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	89	mg/Kg	1000		SW-846 8082A	5/13/14	5/15/14 14:48	JMB
Aroclor-1221 [1]	ND	89	mg/Kg	1000		SW-846 8082A	5/13/14	5/15/14 14:48	JMB
Aroclor-1232 [1]	ND	89	mg/Kg	1000		SW-846 8082A	5/13/14	5/15/14 14:48	JMB
Aroclor-1242 [1]	ND	89	mg/Kg	1000		SW-846 8082A	5/13/14	5/15/14 14:48	JMB
Aroclor-1248 [1]	ND	89	mg/Kg	1000		SW-846 8082A	5/13/14	5/15/14 14:48	JMB
Aroclor-1254 [2]	530	89	mg/Kg	1000		SW-846 8082A	5/13/14	5/15/14 14:48	JMB
Aroclor-1260 [1]	ND	89	mg/Kg	1000		SW-846 8082A	5/13/14	5/15/14 14:48	JMB
Aroclor-1262 [1]	ND	89	mg/Kg	1000		SW-846 8082A	5/13/14	5/15/14 14:48	JMB
Aroclor-1268 [1]	ND	89	mg/Kg	1000		SW-846 8082A	5/13/14	5/15/14 14:48	JMB
Surrogates	% Recovery	Recovery Limits			Flag/Qual				
Decachlorobiphenyl [1]	*	30-150			S-01			5/15/14 14:48	
Decachlorobiphenyl [2]	*	30-150			S-01			5/15/14 14:48	
Tetrachloro-m-xylene [1]	*	30-150			S-01			5/15/14 14:48	
Tetrachloro-m-xylene [2]	*	30-150			S-01			5/15/14 14:48	

Project Location: William James Hall - Harvard

Sample Description:

Work Order: 14E0452

Date Received: 5/13/2014

Field Sample #: WJH-VBC-081

Sampled: 5/13/2014 08:15

Sample ID: 14E0452-02

Sample Matrix: Product/Solid

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	96	mg/Kg	1000		SW-846 8082A	5/13/14	5/15/14 15:06	JMB
Aroclor-1221 [1]	ND	96	mg/Kg	1000		SW-846 8082A	5/13/14	5/15/14 15:06	JMB
Aroclor-1232 [1]	ND	96	mg/Kg	1000		SW-846 8082A	5/13/14	5/15/14 15:06	JMB
Aroclor-1242 [1]	ND	96	mg/Kg	1000		SW-846 8082A	5/13/14	5/15/14 15:06	JMB
Aroclor-1248 [1]	ND	96	mg/Kg	1000		SW-846 8082A	5/13/14	5/15/14 15:06	JMB
Aroclor-1254 [2]	600	96	mg/Kg	1000		SW-846 8082A	5/13/14	5/15/14 15:06	JMB
Aroclor-1260 [1]	ND	96	mg/Kg	1000		SW-846 8082A	5/13/14	5/15/14 15:06	JMB
Aroclor-1262 [1]	ND	96	mg/Kg	1000		SW-846 8082A	5/13/14	5/15/14 15:06	JMB
Aroclor-1268 [1]	ND	96	mg/Kg	1000		SW-846 8082A	5/13/14	5/15/14 15:06	JMB
Surrogates	% Recovery	Recovery Limits			Flag/Qual				
Decachlorobiphenyl [1]	*	30-150			S-01			5/15/14 15:06	
Decachlorobiphenyl [2]	*	30-150			S-01			5/15/14 15:06	
Tetrachloro-m-xylene [1]	*	30-150			S-01			5/15/14 15:06	
Tetrachloro-m-xylene [2]	*	30-150			S-01			5/15/14 15:06	

Project Location: William James Hall - Harvard

Sample Description:

Work Order: 14E0452

Date Received: 5/13/2014

Field Sample #: WJH-VBC-082

Sampled: 5/13/2014 08:20

Sample ID: 14E0452-03

Sample Matrix: Product/Solid

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.098	mg/Kg	1		SW-846 8082A	5/13/14	5/15/14 14:17	JMB
Aroclor-1221 [1]	ND	0.098	mg/Kg	1		SW-846 8082A	5/13/14	5/15/14 14:17	JMB
Aroclor-1232 [1]	ND	0.098	mg/Kg	1		SW-846 8082A	5/13/14	5/15/14 14:17	JMB
Aroclor-1242 [1]	ND	0.098	mg/Kg	1		SW-846 8082A	5/13/14	5/15/14 14:17	JMB
Aroclor-1248 [1]	ND	0.098	mg/Kg	1		SW-846 8082A	5/13/14	5/15/14 14:17	JMB
Aroclor-1254 [2]	0.34	0.098	mg/Kg	1		SW-846 8082A	5/13/14	5/15/14 14:17	JMB
Aroclor-1260 [2]	0.22	0.098	mg/Kg	1		SW-846 8082A	5/13/14	5/15/14 14:17	JMB
Aroclor-1262 [1]	ND	0.098	mg/Kg	1		SW-846 8082A	5/13/14	5/15/14 14:17	JMB
Aroclor-1268 [1]	ND	0.098	mg/Kg	1		SW-846 8082A	5/13/14	5/15/14 14:17	JMB
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	81.3	30-150						5/15/14 14:17	
Decachlorobiphenyl [2]	91.0	30-150						5/15/14 14:17	
Tetrachloro-m-xylene [1]	73.3	30-150						5/15/14 14:17	
Tetrachloro-m-xylene [2]	89.0	30-150						5/15/14 14:17	

Project Location: William James Hall - Harvard

Sample Description:

Work Order: 14E0452

Date Received: 5/13/2014

Field Sample #: WJH-VBC-083

Sampled: 5/13/2014 08:25

Sample ID: 14E0452-04

Sample Matrix: Product/Solid

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	97	mg/Kg	1000		SW-846 8082A	5/13/14	5/15/14 15:24	JMB
Aroclor-1221 [1]	ND	97	mg/Kg	1000		SW-846 8082A	5/13/14	5/15/14 15:24	JMB
Aroclor-1232 [1]	ND	97	mg/Kg	1000		SW-846 8082A	5/13/14	5/15/14 15:24	JMB
Aroclor-1242 [1]	ND	97	mg/Kg	1000		SW-846 8082A	5/13/14	5/15/14 15:24	JMB
Aroclor-1248 [1]	ND	97	mg/Kg	1000		SW-846 8082A	5/13/14	5/15/14 15:24	JMB
Aroclor-1254 [2]	290	97	mg/Kg	1000		SW-846 8082A	5/13/14	5/15/14 15:24	JMB
Aroclor-1260 [1]	ND	97	mg/Kg	1000		SW-846 8082A	5/13/14	5/15/14 15:24	JMB
Aroclor-1262 [1]	ND	97	mg/Kg	1000		SW-846 8082A	5/13/14	5/15/14 15:24	JMB
Aroclor-1268 [1]	ND	97	mg/Kg	1000		SW-846 8082A	5/13/14	5/15/14 15:24	JMB
Surrogates	% Recovery	Recovery Limits			Flag/Qual				
Decachlorobiphenyl [1]	*	30-150			S-01			5/15/14 15:24	
Decachlorobiphenyl [2]	*	30-150			S-01			5/15/14 15:24	
Tetrachloro-m-xylene [1]	*	30-150			S-01			5/15/14 15:24	
Tetrachloro-m-xylene [2]	*	30-150			S-01			5/15/14 15:24	

Project Location: William James Hall - Harvard

Sample Description:

Work Order: 14E0452

Date Received: 5/13/2014

Field Sample #: WJH-VBC-084

Sampled: 5/13/2014 08:30

Sample ID: 14E0452-05

Sample Matrix: Product/Solid

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	96	mg/Kg	1000		SW-846 8082A	5/13/14	5/15/14 15:42	JMB
Aroclor-1221 [1]	ND	96	mg/Kg	1000		SW-846 8082A	5/13/14	5/15/14 15:42	JMB
Aroclor-1232 [1]	ND	96	mg/Kg	1000		SW-846 8082A	5/13/14	5/15/14 15:42	JMB
Aroclor-1242 [1]	ND	96	mg/Kg	1000		SW-846 8082A	5/13/14	5/15/14 15:42	JMB
Aroclor-1248 [1]	ND	96	mg/Kg	1000		SW-846 8082A	5/13/14	5/15/14 15:42	JMB
Aroclor-1254 [2]	330	96	mg/Kg	1000		SW-846 8082A	5/13/14	5/15/14 15:42	JMB
Aroclor-1260 [1]	ND	96	mg/Kg	1000		SW-846 8082A	5/13/14	5/15/14 15:42	JMB
Aroclor-1262 [1]	ND	96	mg/Kg	1000		SW-846 8082A	5/13/14	5/15/14 15:42	JMB
Aroclor-1268 [1]	ND	96	mg/Kg	1000		SW-846 8082A	5/13/14	5/15/14 15:42	JMB
Surrogates	% Recovery	Recovery Limits			Flag/Qual				
Decachlorobiphenyl [1]	*	30-150			S-01			5/15/14 15:42	
Decachlorobiphenyl [2]	*	30-150			S-01			5/15/14 15:42	
Tetrachloro-m-xylene [1]	*	30-150			S-01			5/15/14 15:42	
Tetrachloro-m-xylene [2]	*	30-150			S-01			5/15/14 15:42	

Project Location: William James Hall - Harvard

Sample Description:

Work Order: 14E0452

Date Received: 5/13/2014

Field Sample #: WJH-VBC-085

Sampled: 5/13/2014 08:35

Sample ID: 14E0452-06

Sample Matrix: Product/Solid

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	1.9	mg/Kg	20		SW-846 8082A	5/13/14	5/15/14 16:00	JMB
Aroclor-1221 [1]	ND	1.9	mg/Kg	20		SW-846 8082A	5/13/14	5/15/14 16:00	JMB
Aroclor-1232 [1]	ND	1.9	mg/Kg	20		SW-846 8082A	5/13/14	5/15/14 16:00	JMB
Aroclor-1242 [1]	ND	1.9	mg/Kg	20		SW-846 8082A	5/13/14	5/15/14 16:00	JMB
Aroclor-1248 [1]	ND	1.9	mg/Kg	20		SW-846 8082A	5/13/14	5/15/14 16:00	JMB
Aroclor-1254 [2]	16	1.9	mg/Kg	20		SW-846 8082A	5/13/14	5/15/14 16:00	JMB
Aroclor-1260 [2]	7.1	1.9	mg/Kg	20		SW-846 8082A	5/13/14	5/15/14 16:00	JMB
Aroclor-1262 [1]	ND	1.9	mg/Kg	20		SW-846 8082A	5/13/14	5/15/14 16:00	JMB
Aroclor-1268 [1]	ND	1.9	mg/Kg	20		SW-846 8082A	5/13/14	5/15/14 16:00	JMB
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	50.8	30-150						5/15/14 16:00	
Decachlorobiphenyl [2]	54.0	30-150						5/15/14 16:00	
Tetrachloro-m-xylene [1]	39.0	30-150						5/15/14 16:00	
Tetrachloro-m-xylene [2]	47.6	30-150						5/15/14 16:00	

Sample Extraction Data

Prep Method: SW-846 3540C-SW-846 8082A

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
14E0452-01 [WJH-VBC-080]	B095682	2.24	10.0	05/13/14
14E0452-02 [WJH-VBC-081]	B095682	2.09	10.0	05/13/14
14E0452-03 [WJH-VBC-082]	B095682	2.04	10.0	05/13/14
14E0452-04 [WJH-VBC-083]	B095682	2.07	10.0	05/13/14
14E0452-05 [WJH-VBC-084]	B095682	2.08	10.0	05/13/14
14E0452-06 [WJH-VBC-085]	B095682	2.10	10.0	05/13/14

QUALITY CONTROL
Polychlorinated Biphenyls with 3540 Soxhlet Extraction - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

Batch B095682 - SW-846 3540C
Blank (B095682-BLK1)

Prepared: 05/13/14 Analyzed: 05/15/14

Aroclor-1016	ND	0.10	mg/Kg							
Aroclor-1016 [2C]	ND	0.10	mg/Kg							
Aroclor-1221	ND	0.10	mg/Kg							
Aroclor-1221 [2C]	ND	0.10	mg/Kg							
Aroclor-1232	ND	0.10	mg/Kg							
Aroclor-1232 [2C]	ND	0.10	mg/Kg							
Aroclor-1242	ND	0.10	mg/Kg							
Aroclor-1242 [2C]	ND	0.10	mg/Kg							
Aroclor-1248	ND	0.10	mg/Kg							
Aroclor-1248 [2C]	ND	0.10	mg/Kg							
Aroclor-1254	ND	0.10	mg/Kg							
Aroclor-1254 [2C]	ND	0.10	mg/Kg							
Aroclor-1260	ND	0.10	mg/Kg							
Aroclor-1260 [2C]	ND	0.10	mg/Kg							
Aroclor-1262	ND	0.10	mg/Kg							
Aroclor-1262 [2C]	ND	0.10	mg/Kg							
Aroclor-1268	ND	0.10	mg/Kg							
Aroclor-1268 [2C]	ND	0.10	mg/Kg							
Surrogate: Decachlorobiphenyl	0.966		mg/Kg	1.00		96.6	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.998		mg/Kg	1.00		99.8	30-150			
Surrogate: Tetrachloro-m-xylene	0.874		mg/Kg	1.00		87.4	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.982		mg/Kg	1.00		98.2	30-150			

LCS (B095682-BS1)

Prepared: 05/13/14 Analyzed: 05/15/14

Aroclor-1016	0.25	0.10	mg/Kg	0.250		98.6	40-140			
Aroclor-1016 [2C]	0.27	0.10	mg/Kg	0.250		106	40-140			
Aroclor-1260	0.26	0.10	mg/Kg	0.250		102	40-140			
Aroclor-1260 [2C]	0.26	0.10	mg/Kg	0.250		105	40-140			
Surrogate: Decachlorobiphenyl	0.996		mg/Kg	1.00		99.6	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.982		mg/Kg	1.00		98.2	30-150			
Surrogate: Tetrachloro-m-xylene	0.928		mg/Kg	1.00		92.8	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.989		mg/Kg	1.00		98.9	30-150			

LCS Dup (B095682-BSD1)

Prepared: 05/13/14 Analyzed: 05/15/14

Aroclor-1016	0.25	0.10	mg/Kg	0.250		99.6	40-140	1.06	30	
Aroclor-1016 [2C]	0.27	0.10	mg/Kg	0.250		108	40-140	1.26	30	
Aroclor-1260	0.25	0.10	mg/Kg	0.250		98.8	40-140	3.54	30	
Aroclor-1260 [2C]	0.26	0.10	mg/Kg	0.250		104	40-140	1.35	30	
Surrogate: Decachlorobiphenyl	0.966		mg/Kg	1.00		96.6	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.980		mg/Kg	1.00		98.0	30-150			
Surrogate: Tetrachloro-m-xylene	0.937		mg/Kg	1.00		93.7	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	1.01		mg/Kg	1.00		101	30-150			

FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
	No results have been blank subtracted unless specified in the case narrative section.
S-01	The surrogate recovery for this sample is not available due to sample dilution below the surrogate reporting limit required from high analyte concentration and/or matrix interferences.

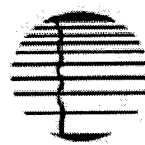
CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
<i>SW-846 8082A in Product/Solid</i>	
Aroclor-1016	CT,NH,NY,ME,NC,VA,NJ
Aroclor-1016 [2C]	CT,NH,NY,ME,NC,VA,NJ
Aroclor-1221	CT,NH,NY,ME,NC,VA,NJ
Aroclor-1221 [2C]	CT,NH,NY,ME,NC,VA,NJ
Aroclor-1232	CT,NH,NY,ME,NC,VA,NJ
Aroclor-1232 [2C]	CT,NH,NY,ME,NC,VA,NJ
Aroclor-1242	CT,NH,NY,ME,NC,VA,NJ
Aroclor-1242 [2C]	CT,NH,NY,ME,NC,VA,NJ
Aroclor-1248	CT,NH,NY,ME,NC,VA,NJ
Aroclor-1248 [2C]	CT,NH,NY,ME,NC,VA,NJ
Aroclor-1254	CT,NH,NY,ME,NC,VA,NJ
Aroclor-1254 [2C]	CT,NH,NY,ME,NC,VA,NJ
Aroclor-1260	CT,NH,NY,ME,NC,VA,NJ
Aroclor-1260 [2C]	CT,NH,NY,ME,NC,VA,NJ

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC	100033	02/1/2016
MA	Massachusetts DEP	M-MA100	06/30/2014
CT	Connecticut Department of Public Health	PH-0567	09/30/2015
NY	New York State Department of Health	10899 NELAP	04/1/2015
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2015
RI	Rhode Island Department of Health	LAO00112	12/30/2014
NC	North Carolina Div. of Water Quality	652	12/31/2014
NJ	New Jersey DEP	MA007 NELAP	06/30/2014
FL	Florida Department of Health	E871027 NELAP	06/30/2014
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2014
WA	State of Washington Department of Ecology	C2065	02/23/2015
ME	State of Maine	2011028	06/9/2015
VA	Commonwealth of Virginia	460217	12/14/2014
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2014



con-test
ANALYTICAL LABORATORY

Phone: 413-525-2332
Fax: 413-525-6405
Email: info@contestlabs.com
www.contestlabs.com

CHAIN OF CUSTODY RECORD

39 Spruce Street
East Longmeadow, MA 01028

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Rev 04.05.12

Company Name: Woodard & Curran Telephone: _____

Address: 40 Southwick Rd Project # 226574

Attention: Andrew MNA Client PO# _____

Project Location: William Davis Well DATA DELIVERY (check all that apply)

Sampled By: Jill Russell Fax # Shane Woodard Curran, Inc.

Project Proposal Provided? (for billing purposes)

O Yes _____ proposal date _____

Format: ☒ PDF ☐ EXCEL ☐ GIS

O OTHER _____

O "Enhanced Data Package"

Con-Test Lab ID Client Sample ID / Description Beginning Date/Time Ending Date/Time Composite Grab Matrix Conc Code

01 WSH-VBC-080 5/13/14 0810 X C V

02 WSH-VBC-081 0815 X C V

03 WSH-VBC-082 0820 X C V

04 WSH-VBC-083 0825 X C V

05 WSH-VBC-084 0830 X C V

06 WSH-VBC-085 5/13/14 0835 X C V

Comments: PCBs 8082 Soxhlet

Relinquished by: (signature) [Signature] Date/Time: 5/13/14 125

Received by: (signature) [Signature] Date/Time: 5/13/14 125

Relinquished by: (signature) [Signature] Date/Time: 5/13/14 1655

TURNAROUND TIME STARTS AT 9:00 A.M. THE DAY AFTER SAMPLE RECEIPT UNLESS THERE ARE QUESTIONS ON YOUR CHAIN. IF THIS FORM IS NOT FILLED OUT COMPLETELY OR IS INCORRECT, TURNAROUND TIME WILL NOT START UNTIL ALL QUESTIONS ARE ANSWERED BY OUR CLIENT.

ANALYSIS REQUESTED

***Containers

** Preservation

***Container Code

Dissolved Metals

O Field Filtered

O Lab to Filter

***Cont. Code:

A=amber glass

G=glass

P=plastic

ST=sterile

V= vial

S=Summa can

T=tedlar bag

O=Other

**Preservation

I= iced

H= HCL

M= Methanol

N= Nitric Acid

S= Sulfuric Acid

B= Sodium bisulfate

X= Na hydroxide

T= Na thiosulfate

O= Other

*Matrix Code:

GW= groundwater

WW= wastewater

DW= drinking water

A= air

S= soil/solid

SL= sludge

O= other

Is your project MCP or RCP?

☒ MCP Form Required

☐ RCP Form Required

☐ MA State DW Form Required PWSID # _____

NECAC & AIHA-LAP, LLC

Accredited



WBE/DBE Certified

39 Spruce St.
East Longmeadow, MA. 01028
P: 413-525-2332
F: 413-525-6405
www.contestlabs.com



Page 1 of 2



Sample Receipt Checklist

CLIENT NAME: Woodard & Curran RECEIVED BY: CC DATE: 5-13-14

1) Was the chain(s) of custody relinquished and signed? ☒ Yes ☐ No ☐ No CoC Included

2) Does the chain agree with the samples? ☒ Yes ☐ No

If not, explain:

3) Are all the samples in good condition? ☒ Yes ☐ No

If not, explain:

4) How were the samples received:

On Ice ☒ Direct from Sampling ☐ Ambient ☐ In Cooler(s) ☒

Were the samples received in Temperature Compliance of (2-6°C)? ☒ Yes ☐ No ☐ N/A

Temperature °C by Temp blank 3.5° Temperature °C by Temp gun _____

5) Are there Dissolved samples for the lab to filter? Yes ☒ No ☐

Who was notified _____ Date _____ Time _____

6) Are there any RUSH or SHORT HOLDING TIME samples? Yes ☒ No ☐

Who was notified _____ Date _____ Time _____

7) Location where samples are stored:

19

Permission to subcontract samples? Yes ☐ No ☐

(Walk-in clients only) if not already approved

Client Signature: _____

8) Do all samples have the proper Acid pH: Yes ☐ No ☒ N/A _____

9) Do all samples have the proper Base pH: Yes ☐ No ☒ N/A _____

10) Was the PC notified of any discrepancies with the CoC vs the samples: Yes ☐ No ☒ N/A

Containers received at Con-Test

	# of containers		# of containers
1 Liter Amber		8 oz amber/clear jar	
500 mL Amber		4 oz <u>amber</u> clear jar	<u>6</u>
250 mL Amber (8oz amber)		2 oz amber/clear jar	
1 Liter Plastic		Plastic Bag / Ziploc	
500 mL Plastic		SOC Kit	
250 mL plastic		Non-ConTest Container	
40 mL Vial - type listed below		Perchlorate Kit	
Colisure / bacteria bottle		Flashpoint bottle	
Dissolved Oxygen bottle		Other glass jar	
Encore		Other	

Laboratory Comments:

40 mL vials: # HCl _____ # Methanol _____

Doc# 277 # Bisulfate _____ # DI Water _____

Rev. 4 August 2013 # Thiosulfate _____ Unpreserved _____

Time and Date Frozen:

Login Sample Receipt Checklist

(Rejection Criteria Listing - Using Sample Acceptance Policy)

Any False statement will be brought to the attention of Client

<u>Question</u>	<u>Answer (True/False)</u>		<u>Comment</u>
	T/F/NA		
1) The cooler's custody seal, if present, is intact.	NA		
2) The cooler or samples do not appear to have been compromised or tampered with.	T		
3) Samples were received on ice.	T		
4) Cooler Temperature is acceptable.	T		
5) Cooler Temperature is recorded.	T		
6) COC is filled out in ink and legible.	T		
7) COC is filled out with all pertinent information.	T		
8) Field Sampler's name present on COC.	T		
9) There are no discrepancies between the sample IDs on the container and the COC.	T		
10) Samples are received within Holding Time.	T		
11) Sample containers have legible labels.	T		
12) Containers are not broken or leaking.	T		
13) Air Cassettes are not broken/open.	NA		
14) Sample collection date/times are provided.	T		
15) Appropriate sample containers are used.	T		
16) Proper collection media used.	T		
17) No headspace sample bottles are completely filled.	T		
18) There is sufficient volume for all requested analyses, including any requested MS/MSDs.	T		
19) Trip blanks provided if applicable.	T		
20) VOA sample vials do not have head space or bubble is <6mm (1/4") in diameter.	NA		
21) Samples do not require splitting or compositing.	T		

Doc #277 Rev. 4 August 2013

Who notified of False statements?

Log-In Technician Initials: PC

Date/Time:

Date/Time: 5.13.14 1655

MADEP MCP Analytical Method Report Certification Form

Laboratory Name: Con-Test Analytical Laboratory	Project #: 14E0452
Project Location: William James Hall - Harvard	RTN:

This Form provides certifications for the following data set: [list Laboratory Sample ID Number(s)]

14E0452-01 thru 14E0452-06

Matrices: Product/Solid

CAM Protocol (check all that below)

8260 VOC CAM II A ()	7470/7471 Hg CAM IIIB ()	MassDEP VPH CAM IV A ()	8081 Pesticides CAM V B ()	7196 Hex Cr CAM VI B ()	MassDEP APH CAM IX A ()
8270 SVOC CAM II B ()	7010 Metals CAM III C ()	MassDEP EPH CAM IV A ()	8151 Herbicides CAM V C ()	8330 Explosives CAM VIII A ()	TO-15 VOC CAM IX B ()
6010 Metals CAM III A ()	6020 Metals CAM III D ()	8082 PCB CAM V A (X)	9014 Total Cyanide/PAC CAM VI A ()	6860 Perchlorate CAM VIII B ()	

Affirmative response to Questions A through F is required for "Presumptive Certainty" status

A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹
E a	VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications).	<input type="checkbox"/> Yes <input type="checkbox"/> No ¹
E b	APH and TO-15 Methods only: Was the complete analyte list reported for each method?	<input type="checkbox"/> Yes <input type="checkbox"/> No ¹
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all No responses to Questions A through E)?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹

A response to questions G, H and I below is required for "Presumptive Certainty" status

G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹
----------	---	--

Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.

H	Were all QC performance standards specified in the CAM protocol(s) achieved?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No ¹
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹

¹ All Negative responses must be addressed in an attached Environmental Laboratory case narrative.

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: Michael A. Erickson

Position: Laboratory Director

Printed Name: Michael A. Erickson

Date: 05/20/14

June 24, 2014

Amy Martin
Woodard & Curran - Andover, MA
40 Shattuck Road., Suite 110
Andover, MA 01810

Project Location: William James Hall - Harvard
Client Job Number:
Project Number: 226574
Laboratory Work Order Number: 14F0745

Enclosed are results of analyses for samples received by the laboratory on June 17, 2014. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, reading "Meghan E. Kelley". The signature is written in a cursive, flowing style.

Meghan E. Kelley
Project Manager

Woodard & Curran - Andover, MA
40 Shattuck Road., Suite 110
Andover, MA 01810
ATTN: Amy Martin

REPORT DATE: 6/24/2014

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 226574

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 14F0745

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: William James Hall - Harvard

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
WJH-VWC-087	14F0745-01	Wipe		SW-846 8082A	
WJH-VWC-089	14F0745-02	Wipe		SW-846 8082A	
WJH-VWC-088	14F0745-03	Wipe		SW-846 8082A	
WJH-VWC-090	14F0745-04	Wipe		SW-846 8082A	

CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

SW-846 8082A**Qualifications:**

Sample contains two incompletely resolved aroclors. Aroclor with the closest matching pattern is reported.

Analyte & Samples(s) Qualified:**Aroclor-1254, Aroclor-1254 [2C]**

14F0745-02[WJH-VWC-089], 14F0745-03[WJH-VWC-088], 14F0745-04[WJH-VWC-090]

The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.

I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.



Michael A. Erickson
Laboratory Director

Project Location: William James Hall - Harvard

Sample Description:

Work Order: 14F0745

Date Received: 6/17/2014

Field Sample #: WJH-VWC-087

Sampled: 6/16/2014 08:30

Sample ID: 14F0745-01

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/20/14	6/23/14 18:13	MJC
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/20/14	6/23/14 18:13	MJC
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/20/14	6/23/14 18:13	MJC
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/20/14	6/23/14 18:13	MJC
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/20/14	6/23/14 18:13	MJC
Aroclor-1254 [2]	1.7	0.20	µg/Wipe	1		SW-846 8082A	6/20/14	6/23/14 18:13	MJC
Aroclor-1260 [2]	0.38	0.20	µg/Wipe	1		SW-846 8082A	6/20/14	6/23/14 18:13	MJC
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/20/14	6/23/14 18:13	MJC
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/20/14	6/23/14 18:13	MJC
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	83.1	30-150							
Decachlorobiphenyl [2]	92.7	30-150							
Tetrachloro-m-xylene [1]	77.0	30-150							
Tetrachloro-m-xylene [2]	88.6	30-150							

Project Location: William James Hall - Harvard

Sample Description:

Work Order: 14F0745

Date Received: 6/17/2014

Field Sample #: WJH-VWC-089

Sampled: 6/16/2014 08:50

Sample ID: 14F0745-02

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/20/14	6/23/14 18:25	MJC
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/20/14	6/23/14 18:25	MJC
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/20/14	6/23/14 18:25	MJC
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/20/14	6/23/14 18:25	MJC
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/20/14	6/23/14 18:25	MJC
Aroclor-1254 [2]	1.3	0.20	µg/Wipe	1	O-03	SW-846 8082A	6/20/14	6/23/14 18:25	MJC
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/20/14	6/23/14 18:25	MJC
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/20/14	6/23/14 18:25	MJC
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/20/14	6/23/14 18:25	MJC
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	80.3	30-150							
Decachlorobiphenyl [2]	89.9	30-150							
Tetrachloro-m-xylene [1]	76.8	30-150							
Tetrachloro-m-xylene [2]	88.0	30-150							

Project Location: William James Hall - Harvard

Sample Description:

Work Order: 14F0745

Date Received: 6/17/2014

Field Sample #: WJH-VWC-088

Sampled: 6/16/2014 08:40

Sample ID: 14F0745-03

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/20/14	6/23/14 18:38	MJC
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/20/14	6/23/14 18:38	MJC
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/20/14	6/23/14 18:38	MJC
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/20/14	6/23/14 18:38	MJC
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/20/14	6/23/14 18:38	MJC
Aroclor-1254 [2]	0.91	0.20	µg/Wipe	1	O-03	SW-846 8082A	6/20/14	6/23/14 18:38	MJC
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/20/14	6/23/14 18:38	MJC
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/20/14	6/23/14 18:38	MJC
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/20/14	6/23/14 18:38	MJC
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	85.4	30-150							
Decachlorobiphenyl [2]	95.7	30-150							
Tetrachloro-m-xylene [1]	78.7	30-150							
Tetrachloro-m-xylene [2]	90.7	30-150							

Project Location: William James Hall - Harvard

Sample Description:

Work Order: 14F0745

Date Received: 6/17/2014

Field Sample #: WJH-VWC-090

Sampled: 6/16/2014 09:00

Sample ID: 14F0745-04

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/20/14	6/23/14 18:51	MJC
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/20/14	6/23/14 18:51	MJC
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/20/14	6/23/14 18:51	MJC
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/20/14	6/23/14 18:51	MJC
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/20/14	6/23/14 18:51	MJC
Aroclor-1254 [2]	0.27	0.20	µg/Wipe	1	O-03	SW-846 8082A	6/20/14	6/23/14 18:51	MJC
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/20/14	6/23/14 18:51	MJC
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/20/14	6/23/14 18:51	MJC
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/20/14	6/23/14 18:51	MJC
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	83.6	30-150							
Decachlorobiphenyl [2]	93.1	30-150							
Tetrachloro-m-xylene [1]	74.9	30-150							
Tetrachloro-m-xylene [2]	86.0	30-150							

Sample Extraction Data

Prep Method: SW-846 3540C-SW-846 8082A

Lab Number [Field ID]	Batch	Initial [Wipe]	Final [mL]	Date
14F0745-01 [WJH-VWC-087]	B098364	1.00	10.0	06/20/14
14F0745-02 [WJH-VWC-089]	B098364	1.00	10.0	06/20/14
14F0745-03 [WJH-VWC-088]	B098364	1.00	10.0	06/20/14
14F0745-04 [WJH-VWC-090]	B098364	1.00	10.0	06/20/14

QUALITY CONTROL
Polychlorinated Biphenyls with 3540 Soxhlet Extraction - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

Batch B098364 - SW-846 3540C
Blank (B098364-BLK1)

Prepared: 06/20/14 Analyzed: 06/23/14

Aroclor-1016	ND	0.20	µg/Wipe							
Aroclor-1016 [2C]	ND	0.20	µg/Wipe							
Aroclor-1221	ND	0.20	µg/Wipe							
Aroclor-1221 [2C]	ND	0.20	µg/Wipe							
Aroclor-1232	ND	0.20	µg/Wipe							
Aroclor-1232 [2C]	ND	0.20	µg/Wipe							
Aroclor-1242	ND	0.20	µg/Wipe							
Aroclor-1242 [2C]	ND	0.20	µg/Wipe							
Aroclor-1248	ND	0.20	µg/Wipe							
Aroclor-1248 [2C]	ND	0.20	µg/Wipe							
Aroclor-1254	ND	0.20	µg/Wipe							
Aroclor-1254 [2C]	ND	0.20	µg/Wipe							
Aroclor-1260	ND	0.20	µg/Wipe							
Aroclor-1260 [2C]	ND	0.20	µg/Wipe							
Aroclor-1262	ND	0.20	µg/Wipe							
Aroclor-1262 [2C]	ND	0.20	µg/Wipe							
Aroclor-1268	ND	0.20	µg/Wipe							
Aroclor-1268 [2C]	ND	0.20	µg/Wipe							
Surrogate: Decachlorobiphenyl	1.66		µg/Wipe	2.00		83.2	30-150			
Surrogate: Decachlorobiphenyl [2C]	1.84		µg/Wipe	2.00		92.2	30-150			
Surrogate: Tetrachloro-m-xylene	1.50		µg/Wipe	2.00		75.0	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	1.72		µg/Wipe	2.00		86.0	30-150			

LCS (B098364-BS1)

Prepared: 06/20/14 Analyzed: 06/24/14

Aroclor-1016	0.48	0.20	µg/Wipe	0.500		95.3	40-140			
Aroclor-1016 [2C]	0.52	0.20	µg/Wipe	0.500		103	40-140			
Aroclor-1260	0.44	0.20	µg/Wipe	0.500		87.7	40-140			
Aroclor-1260 [2C]	0.49	0.20	µg/Wipe	0.500		98.0	40-140			
Surrogate: Decachlorobiphenyl	1.81		µg/Wipe	2.00		90.6	30-150			
Surrogate: Decachlorobiphenyl [2C]	2.02		µg/Wipe	2.00		101	30-150			
Surrogate: Tetrachloro-m-xylene	1.61		µg/Wipe	2.00		80.3	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	1.96		µg/Wipe	2.00		98.0	30-150			

LCS Dup (B098364-BSD1)

Prepared: 06/20/14 Analyzed: 06/23/14

Aroclor-1016	0.50	0.20	µg/Wipe	0.500		101	40-140	5.30	30	
Aroclor-1016 [2C]	0.51	0.20	µg/Wipe	0.500		102	40-140	1.61	30	
Aroclor-1260	0.44	0.20	µg/Wipe	0.500		88.7	40-140	1.16	30	
Aroclor-1260 [2C]	0.47	0.20	µg/Wipe	0.500		94.5	40-140	3.72	30	
Surrogate: Decachlorobiphenyl	1.73		µg/Wipe	2.00		86.7	30-150			
Surrogate: Decachlorobiphenyl [2C]	1.95		µg/Wipe	2.00		97.3	30-150			
Surrogate: Tetrachloro-m-xylene	1.58		µg/Wipe	2.00		79.0	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	1.82		µg/Wipe	2.00		90.8	30-150			

FLAG/QUALIFIER SUMMARY

- * QC result is outside of established limits.
 - † Wide recovery limits established for difficult compound.
 - ‡ Wide RPD limits established for difficult compound.
 - # Data exceeded client recommended or regulatory level
- Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
- No results have been blank subtracted unless specified in the case narrative section.
- O-03 Sample contains two incompletely resolved aroclors. Aroclor with the closest matching pattern is reported.

CERTIFICATIONS

Certified Analyses included in this Report

Analyte

Certifications

No certified Analyses included in this Report

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC	100033	02/1/2016
MA	Massachusetts DEP	M-MA100	06/30/2014
CT	Connecticut Department of Public Health	PH-0567	09/30/2015
NY	New York State Department of Health	10899 NELAP	04/1/2015
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2015
RI	Rhode Island Department of Health	LAO00112	12/30/2014
NC	North Carolina Div. of Water Quality	652	12/31/2014
NJ	New Jersey DEP	MA007 NELAP	06/30/2015
FL	Florida Department of Health	E871027 NELAP	06/30/2014
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2014
WA	State of Washington Department of Ecology	C2065	02/23/2015
ME	State of Maine	2011028	06/9/2015
VA	Commonwealth of Virginia	460217	12/14/2014
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2014



Sampled By: J. H. Kossak

☐ Yes _____ proposal date

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Page 5

Page 5

IE/DBE Certifi

CHAIN. IF THIS FORM IS NOT FILLED OUT COMPLETELY OR PLEASE BE CAREFUL NOT TO CONTAMINATE THIS DOCUMENT

1

39 Spruce St.
East Longmeadow, MA. 01028
P: 413-525-2332
F: 413-525-6405
www.contestlabs.com



Page 1 of 2



Sample Receipt Checklist

CLIENT NAME: Woodard + Curran RECEIVED BY: NCD DATE: 6/17/14

1) Was the chain(s) of custody relinquished and signed? ☒ Yes ☐ No No CoC Included

2) Does the chain agree with the samples? ☒ Yes ☐ No

If not, explain:

3) Are all the samples in good condition? ☒ Yes ☐ No

If not, explain:

4) How were the samples received:

On Ice ☒ Direct from Sampling ☐ Ambient ☐ In Cooler(s) ☒

Were the samples received in Temperature Compliance of (2-6°C)? ☒ Yes ☐ No N/A

Temperature °C by Temp blank _____ Temperature °C by Temp gun 5.3°C

5) Are there Dissolved samples for the lab to filter? Yes ☒ No

Who was notified _____ Date _____ Time _____

6) Are there any RUSH or SHORT HOLDING TIME samples? Yes ☒ No

Who was notified _____ Date _____ Time _____

7) Location where samples are stored:

19

Permission to subcontract samples? Yes No
(Walk-in clients only) if not already approved
Client Signature: _____

8) Do all samples have the proper Acid pH: Yes No ☒ N/A

9) Do all samples have the proper Base pH: Yes No ☒ N/A

10) Was the PC notified of any discrepancies with the CoC vs the samples: Yes No ☒ N/A

Containers received at Con-Test

	# of containers		# of containers
1 Liter Amber		8 oz amber/clear jar	
500 mL Amber		4 oz amber/clear jar	<u>4</u>
250 mL Amber (8oz amber)		2 oz amber/clear jar	
1 Liter Plastic		Plastic Bag / Ziploc	
500 mL Plastic		SOC Kit	
250 mL plastic		Non-ConTest Container	
40 mL Vial - type listed below		Perchlorate Kit	
Colisure / bacteria bottle		Flashpoint bottle	
Dissolved Oxygen bottle		Other glass jar	
Encore		Other	

Laboratory Comments:

40 mL vials: # HCl _____ # Methanol _____

Bisulfate _____ # DI Water _____

Thiosulfate _____ Unpreserved

Time and Date Frozen:

Doc# 277

Rev. 4 August 2013

Login Sample Receipt Checklist
(Rejection Criteria Listing - Using Sample Acceptance Policy)
Any False statement will be brought to the attention of Client

<u>Question</u>	<u>Answer (True/False)</u>	<u>Comment</u>
	T/F/NA	
1) The cooler's custody seal, if present, is intact.	T	
2) The cooler or samples do not appear to have been compromised or tampered with.		
3) Samples were received on ice.		
4) Cooler Temperature is acceptable.		
5) Cooler Temperature is recorded.		
6) COC is filled out in ink and legible.		
7) COC is filled out with all pertinent information.		
8) Field Sampler's name present on COC.		
9) There are no discrepancies between the sample IDs on the container and the COC.		
10) Samples are received within Holding Time.		
11) Sample containers have legible labels.		
12) Containers are not broken or leaking.		
13) Air Cassettes are not broken/open.	NA	
14) Sample collection date/times are provided.	T	
15) Appropriate sample containers are used.		
16) Proper collection media used.		
17) No headspace sample bottles are completely filled.	NA	
18) There is sufficient volume for all requested analyses, including any requested MS/MSDs.	T	
19) Trip blanks provided if applicable.	NA	
20) VOA sample vials do not have head space or bubble is <6mm (1/4") in diameter.		
21) Samples do not require splitting or compositing.		

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Who notified of False statements?
 Log-In Technician Initials:

Date/Time:
 Date/Time:

NCS

6/17/14 1620

MADEP MCP Analytical Method Report Certification Form

Laboratory Name: Con-Test Analytical Laboratory

Project #: 14F0745

Project Location: William James Hall - Harvard

RTN:

This Form provides certifications for the following data set: [list Laboratory Sample ID Number(s)]

14F0745-01 thru 14F0745-04

Matrices: Wipe

CAM Protocol (check all that below)

8260 VOC CAM II A ()	7470/7471 Hg CAM IIIB ()	MassDEP VPH CAM IV A ()	8081 Pesticides CAM V B ()	7196 Hex Cr CAM VI B ()	MassDEP APH CAM IX A ()
8270 SVOC CAM II B ()	7010 Metals CAM III C ()	MassDEP EPH CAM IV A ()	8151 Herbicides CAM V C ()	8330 Explosives CAM VIII A ()	TO-15 VOC CAM IX B ()
6010 Metals CAM III A ()	6020 Metals CAM III D ()	8082 PCB CAM V A (X)	9014 Total Cyanide/PAC CAM VI A ()	6860 Perchlorate CAM VIII B ()	

Affirmative response to Questions A through F is required for "Presumptive Certainty" status

A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹
E a	VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications).	<input type="checkbox"/> Yes <input type="checkbox"/> No ¹
E b	APH and TO-15 Methods only: Was the complete analyte list reported for each method?	<input type="checkbox"/> Yes <input type="checkbox"/> No ¹
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all No responses to Questions A through E)?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹

A response to questions G, H and I below is required for "Presumptive Certainty" status

G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹
----------	---	--

Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.

H	Were all QC performance standards specified in the CAM protocol(s) achieved?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹

¹ All Negative responses must be addressed in an attached Environmental Laboratory case narrative.

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: Michael A. Erickson

Position: Laboratory Director

Printed Name: Michael A. Erickson

Date: 06/24/14

14F0745-01 WJH-VWC-087

Analyte	Results		%RPD
Aroclor-1260 [2C]	0.38	0.34324	10.2
Aroclor-1254 [2C]	1.7	1.38968	20.1
Surrogates			
Decachlorobiphenyl	1.66	1.85401	11
Tetrachloro-m-xylene	1.54	1.77102	14

14F0745-02 WJH-VWC-089

Analyte	Results		%RPD
Aroclor-1254 [2C]	1.3	1.20868	7.28
Surrogates			
Decachlorobiphenyl	1.61	1.79892	11.1
Tetrachloro-m-xylene	1.54	1.76083	13.4

14F0745-03 WJH-VWC-088

Analyte	Results		%RPD
Aroclor-1254 [2C]	0.91	0.7758	15.9
Surrogates			
Decachlorobiphenyl	1.71	1.914	11.3
Tetrachloro-m-xylene	1.57	1.81417	14.4

14F0745-04 WJH-VWC-090

Analyte	Results		%RPD
Aroclor-1254 [2C]	0.27	0.24123	11.3
Surrogates			
Tetrachloro-m-xylene	1.50	1.71957	13.6
Decachlorobiphenyl	1.67	1.86171	10.9

B098364-BLK1 Blank

Analyte	Results		%RPD
Surrogates			
Decachlorobiphenyl	1.66	1.84422	10.5
Tetrachloro-m-xylene	1.50	1.72076	13.7

B098364-BS1 LCS

Analyte	Results		%RPD
Aroclor-1016	0.48	0.51648	7.32
Aroclor-1260	0.44	0.49025	10.8
Surrogates			
Decachlorobiphenyl	1.81	2.02222	11.1
Tetrachloro-m-xylene	1.61	1.95964	19.6

B098364-BSD1 LCS Dup

Analyte	Results		%RPD
Aroclor-1016	0.50	0.50825	1.64
Aroclor-1260	0.44	0.47234	7.09
Surrogates			
Tetrachloro-m-xylene	1.58	1.81581	13.9
Decachlorobiphenyl	1.73	1.94524	11.7

APPENDIX C: PRODUCT TECHNICAL SPECIFICATION SHEETS



2 Ton Epoxy®

Description: Extremely strong, medium-cure, water-resistant clear adhesive that will self-level after application.

Intended Use: Bonding parts in a structural environment or potting electronic components and assemblies

Product features: Cures without shrinking
Cures at room temperature
Good impact resistance
Produces strong, rigid bond on metal, ceramics, wood, concrete, glass, or combinations

Limitations: None

Typical Physical Properties: *Technical data should be considered representative or typical only and should not be used for specification purposes.*

Cured 7 days @ 75° F

T-peel	2-3 pli
Impact Resistance	6.5 ft.-lb./in.(2)
Tensile Elongation	1%
Shore Hardness	83 Shore D
Gap-Fill	Good
Dielectric Strength	600 volts/mil
% Solids by Volume	100
Adhesive Tensile Lap Shear[GBS]	2,250 psi @ 0.010" bondline
Compression Strength	11,000 psi
Specific Volume	25.2 in.(3)/lb.

Uncured

Color	Clear
Mixed Viscosity	8,000 cps
Mix Ratio by Volume	1:1
Mix Ratio by Weight	1:1
Mixed Density	9.17 lbs/gal.: 1.10 gm/cc
Working Time	8-12 min. (28 gm @ 72°F)
Fixture Time	30-35 min. @ 72°F
Functional Cure	2 hrs. @ 72°F
Full Cure	12 hrs.
Service Temperature	Dry, -40°F to 200°F

TESTS CONDUCTED

Thermal Conductivity ASTM C 177
Dielectric Strength, volts/mil ASTM D 149
Compressive Strength ASTM D 695
Cured Hardness Shore D ASTM D 2240
Adhesive Tensile Shear ASTM D 1002

Surface Preparation: Clean surface by solvent-wiping any deposits of heavy grease, oil, dirt, or other contaminants. Surface can also be cleaned with industrial cleaning equipment such as vapor phase degreasers or hot aqueous baths. If working with metal, abrade or roughen the surface to significantly increase the microscopic bond area and increase the bond strength.

Mixing Instructions: ---- Proper homogenous mixing of resin and hardener is essential for the curing and development of stated strengths. ----

25 ML DEV-TUBE

1. Squeeze material into a small container the size of an ashtray.
2. Using mixing stick included on Dev-tube handle, vigorously mix components for one (1) minute.
3. Immediately apply to substrate.

50 ML/400ML/490 ML CARTRIDGES

1. Attach cartridge to Mark 5 dispensing system.
2. Open tip.
3. Burp cartridge by squeezing out some material until both sides are uniform (ensures no air bubbles are present during mixing).
4. Attach mix nozzle to end of cartridge.
5. Apply to substrate.

**Application
Instructions:**

1. Apply mixed epoxy directly to one surface in an even film or as a bead.
2. Assemble with mating part within recommended working time.
3. Apply firm pressure between mating parts to minimize any gap and ensure good contact (a small fillet of epoxy should flow out the edges to display adequate gap fill.)

For very large gaps:

1. Apply epoxy to both surfaces
2. Spread to cover entire area OR make a bead pattern to allow flow throughout the joint

Let bonded assemblies stand for recommended functional cure time prior to handling.

CAPABILITIES:

Can withstand processing forces
Do not drop, shock load, or heavily load

Full bond strength is reached in 16 hours.

Storage:

Store in a cool, dry place.

Compliances:

None

**Chemical
Resistance:**

Chemical resistance is calculated with a 7 day, room temp. cure (30 days immersion) @ 75°F)

Acetic (Dilute) 10%	Poor	Hydrochloric 10%	Poor
Acetone	Fair	Isopropanol	Poor
Ammonia	Very good	Kerosene	Excellent
Corn Oil	Excellent	Methyl Ethyl Ketone	Poor
Cutting Oil	Excellent	Mineral Spirits	Excellent
Ethanol	Poor	Motor Oil	Excellent
Gasoline (Unleaded)	Excellent	Sodium Hydroxide 10%	Very good
Glycols/Antifreeze	Excellent	Sulfuric 10%	Poor

Precautions:

Please refer to the appropriate material safety data sheet (MSDS) prior to using this product.

For technical assistance, please call 1-800-933-8266

FOR INDUSTRIAL USE ONLY

Warranty:

Devcon will replace any material found to be defective. Because the storage, handling and application of this material is beyond our control, we can accept no liability for the results obtained.

Disclaimer:

All information on this data sheet is based on laboratory testing and is not intended for design purposes. ITW Devcon makes no representations or warranties of any kind concerning this data.

**Order
Information:**

14260 50 ml Dev-Pak
14355 400 ml cartridge
DA 039 10 gal white
DA 040 100 gal white
DA 048 100 gal black
14310 25 ml DevTube
14360 9 lb.



Conpro Lastic

Roller, spray or brush applied, waterproof, elastomeric, crack bridging, anti-carbonation membrane.

WHERE TO USE
Protect vertical concrete, block, brick, stucco and EIFS from water and contaminant entry. Will bridge minor cracking.

PERFORMANCE CHARACTERISTICS

Flexible

- Retains elasticity at low temperatures.

Waterproof

- Two 15 mils. wet coats provide waterproof membrane.

Anti-carbonation

- Mitigates carbonation of concrete.

Breathability

- Water vapor permeable.

Alkaline stable

- Formulated for highly alkaline substrates.

Durable

- UV stable. Mildew resistant.

Colorfast

- Premium quality exterior grade pigments, minimize fading.

Textures

- Available in sanded and smooth finishes.

Extensive color spectrum

- 38 standard colors and custom matching.

SURFACE PREPARATION

- Remove loose and deteriorated material, laitance, dirt, dust, oil and any surface contaminants that will inhibit proper adhesion.
- Prepare surface to a sandpaper-like texture (CSP 3) by mechanical abrasion or medium water blasting. Refer to ICRI Surface Preparation Guide 03732 for information about Concrete Surface Profile (CSP).
- Surface must be dry and frost free.
- Small voids, air pockets, static cracks up to 1/16 inch and irregularities should be filled with *Plastermix*.
- Repair larger voids and damaged areas with *Conpro Set*.
- For cracks greater than 1/16 inch, rout and caulk with a urethane sealant. Refer to SWRI Sealants – The Professionals' Guide.
- Apply Plastermix to concrete where a monolithic, void free texture is desired.
- Apply Plastermix on reinforced concrete to increase carbonation resistance.

APPLICATION

- Apply a test sample to determine adhesion. Test using ASTM D3359 cross-hatch adhesion procedure.
- Substrate temperature must be above 45°F.
- Ambient temperature must be above 45°F for the entire curing period.
- Roll, spray or brush apply a uniform 15 mils. wet – dries to 7 mils.
- For roller applications use a 1 - 1-1/4 inch synthetic nap roller depending on texture of substrate.
- For spray applications use a Graco 3500, President or Bulldog or equivalent with a 0.041 - 0.047 tip. Refer to *Conproco Black Book*.
- Spray application must be back rolled for a pin-hole free surface.
- Work to pre-determined break points in the structure.
- Maintain a wet edge.
- Apply a second coat when the first is dry-to-touch.

CURING

- Protect from moisture for 24 hours and wind driven rain for 72 hours.

CLEAN UP

- Clean tools and equipment with water. Clean adjacent areas with water before material dries.

PRIMING

- Use *Conpro Point 5* on chalky concrete surfaces and to increase coverage on normal substrates.

MIXING

- Stir or mechanically mix using a low speed drill (400 - 600) until homogenous.
- Mix pails from different batches when an entire surface is visible.

SEALANT • WATERPROOFING & RESTORATION INSTITUTE	
Issued to: Conproco Corporation	
Product: Conpro Lastic	
ASTM D 6904: Resistance to Wind Driven Rain	
Weight Gain: .3 oz. Water Leaks: none	Pass ✓
ASTM D 1653: Moisture Vapor Transmission	
WVT (grains/ft ² .h) 11.5 oz. Perms (grains/ft ² .h.in.Hg): 28	Pass ✓
ASTM D 412: Tensile Properties	
Tensile Strength: 311 psi Elongation: 608%	Pass ✓
ASTM C 1305: Cracking Bridging Ability	
Results: No cracking	Pass ✓
ASTM D 2697: Solids Content by Volume	
Results: 46% Density: 10.6 lbs/gal.	Pass ✓
Validation Date: 6/20/12 – 6/19/17	
No. 612CON617 Copyright © 2012	
WALLCOATINGS VALIDATION	
www.swrionline.org	

COVERAGE/YIELD

- 100 ft.²/gal. @ 15 mils. wet for smooth surfaces.
- 50 - 75 ft.²/gal. @ 15 mils. wet for split block or rough surfaces.

PRODUCT HANDLING

Packaging

- 5 gallon containers.

Shelf Life

- 18 months in unopened containers.

Storage

- Protect from freezing.
- Transport and store in cool, clean, dry conditions in unopened containers.
- High temperature will reduce shelf life.

LIMITATIONS

- Do not apply if precipitation is forecast within 24 hours of application.
- Do not apply in strong winds.
- Do not apply to horizontal or overhead surfaces.
- Do not apply to frozen surfaces.
- Do not apply if temperature of substrate is below 45°F.
- Do not apply if ambient temperature is below 45°F.
- Do not apply in areas susceptible to ponding water.

DISPOSAL

- Dispose of material in accordance with local, state or federal regulations.

HEALTH AND SAFETY

- Product is alkaline.
- Do not ingest.
- Avoid contact with skin and eyes.
- Avoid breathing vapors.
- Refer to Material Safety Data Sheet (MSDS) for additional information.

FIRST AID

- In case of skin contact, wash thoroughly with soap and water.
- For eye contact, flush immediately with a high volume of water for at least 15 minutes and contact a medical professional.
- For respiratory problems, remove person to fresh air.
- If respiratory difficulty persists, contact a medical professional.

TECHNICAL DATA

Grade		Smooth	Sanded (Textured)
Physical state and appearance		Liquid – tinted – thick paint	Liquid – tinted – thick paint
Base		Aqueous	Aqueous
Polymer		100% acrylic	100% acrylic
pH		9.5 - 10.5	9.5 - 10.5
Percent solids by weight		54%	62%
Percent solids by volume	ASTM D2697	46%	–
Viscosity	ASTM D562	<142 KU	<142 KU
Flame spread	ASTM E84	Zero	Zero
Density of liquid coatings	ASTM D1475	10.6 lbs./gal.	11.2 lbs./gal.
Tear resistance	ASTM D6083	80 lbs./inch.	28 lbs./inch.
Moisture vapor transmission Method B wet cup	ASTM D1653	16.2 perms @ 15 mils. DFT	39 perms @ 15 mils. DFT
Accelerated weathering – QUV	ASTM G154	2000 hours – UV-B cycled with condensation – no effect	Same data as for smooth
Resistance to chemicals	ASTM D1308	Excellent	Excellent
Water penetration and leakage	ASTM E514	100% reduction	100% reduction
Wind driven rain	Fed. Spec TT-C-555B	Pass	Pass
Wind driven rain	ASTM D6904	Pass	–
Dirt pick-up	ASTM D3719	Excellent	Excellent
Low temperature flexibility	ASTM D522	Pass	Pass
Low temperature flexibility after 1000 hrs.	ASTM D522	Pass	Pass
Tensile	ASTM D412	270 psi	–
Elongation	ASTM D412	485%	–
Crack Bridging	ASTM C1305	No Cracking	–

FOR PROFESSIONAL USE ONLY

Conproco Corp. warrants this product for one year from date of installation to be free from manufacturing defects and to meet the technical properties on the current technical data sheet if used as directed within shelf life. User determines suitability of product for use and assumes all risks. Buyer's sole remedy shall be limited to the purchase price or replacement of product exclusive of labor or cost of labor. May 2014.

NO OTHER WARRANTIES EXPRESS OR IMPLIED SHALL APPLY INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. CONPROCO CORP. SHALL NOT BE LIABLE UNDER ANY LEGAL THEORY FOR SPECIAL OR CONSEQUENTIAL DAMAGES.

conproco[®]
CORPORATION

17 PRODUCTION DRIVE, DOVER, NEW HAMPSHIRE 03820
TELEPHONE 800.258.3500 • FAX 603.743.5744 • WEB ADDRESS www.conproco.com

APPENDIX D: WASTE SHIPMENT RECORDS

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator ID Number M A D 0 0 1 9 6 3 2 6 3	2. Page 1 of 1	3. Emergency Response Phone (800) 424- 9300	4. Manifest Tracking Number 002232715 GBF		
5. Generator's Name and Mailing Address HARVARD UNIVERSITY Attn: Lance Schumacher 46 BLACKSTONE ST CAMBRIDGE MA 02139			Generator's Site Address (if different than mailing address) HARVARD UNIVERSITY 33 KIRKLAND ST CAMBRIDGE MA 02138				
Generator's Phone: (617) 389- 8880							
6. Transporter 1 Company Name VEOLIA ES TECHNICAL SOLUTIONS			U.S. EPA ID Number NSD 080631369				
7. Transporter 2 Company Name FREEHOLD CARTAGE INC			U.S. EPA ID Number NSD 054126164				
8. Designated Facility Name and Site Address CWM CHEMICAL SERVICES, L.L.C. 1550 BALMER RD. MODEL CITY NY 14107			U.S. EPA ID Number NYD 049836679				
Facility's Phone: (716) 286- 1550							
GENERATOR	9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))		10. Containers No. Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
	X	1. RQ, UN3432, POLYCHLORINATED BIPHENYLS, SOLID MIXTURE, 9, III <div style="text-align: right;">NY304937</div>		11 DM	550	K	RB1 B007
		2.					
		3.					
		4.					
14. Special Handling Instructions and Additional Information 1. NY304937 - CAULK AND DEBRIS WITH PCBS >50 PPM PCBS See PCB Continuation Sheet for information required by 40 CFR 761.207(a) FRI SERVICE CONTRACTED BY WASTE MANAGEMENT CCN24117 15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true. Generator's/Offor's Printed/Typed Name LANCE D. Schumacher Signature <i>[Signature]</i> Month Day Year 4 22 14							
16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit: Date leaving U.S.:							
TRANSPORTER	17. Transporter Acknowledgment of Receipt of Materials						
	Transporter 1 Printed/Typed Name GABRIEL PEREIRA			Signature <i>[Signature]</i>		Month Day Year 4 22 14	
	Transporter 2 Printed/Typed Name MICHAEL GUENAG			Signature <i>[Signature]</i>		Month Day Year 4 22 14	
DESIGNATED FACILITY	18. Discrepancy						
	18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection						
	18b. Alternate Facility (or Generator) Manifest Reference Number: U.S. EPA ID Number						
	Facility's Phone: 18c. Signature of Alternate Facility (or Generator) Month Day Year						
19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)							
1. H132		2.		3.		4.	
20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a							
Printed/Typed Name Richard La BEND			Signature <i>[Signature]</i>			Month Day Year 04 29 14	



CWM CHEMICAL SERVICES, LLC

1550 Balmer Road
Model City, NY 14107
716 286 1550
716 286 0211 Fax

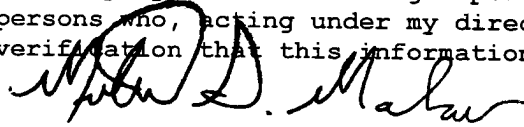
HARVARD UNIVERSITY
ATTN: LANCE SCHUMACHER
MAD001963263
46 BLACKSTONE, ENV/SAFETY PROGRAMS
CAMBRIDGE MA 02139

CERTIFICATE OF DISPOSAL

CWM CHEMICAL SERVICES, L.L.C., EPA ID: NYD049836679, has received waste material from HARVARD UNIVERSITY on 04/29/14 as described on Shipping Document number 002232715GBF Sequence number 01. CWM CHEMICAL SERVICES, L.L.C. hereby certifies that the above described material was landfilled in accordance with the 40 CFR part 761 as it pertains to the land disposal of polychlorinated biphenyl contaminated materials.

Profile Number: NY304937
CWM Tracking ID: 8166406301
CWM Unit #: 1*0 thru 11*0
Disposal Date: 05/09/14

Under civil and criminal penalties of law for the making or submission of false or fraudulent statements or representations (18 U.S.C 1001 and 15 U.S.C. 2615) I certify that the information contained in or accompanying this document is true accurate and complete. As to the identified section(s) of this document for which I cannot personally verify truth and accuracy, I certify as the company official having supervisory responsibility for the persons who, acting under my direct instructions, made the verification that this information is true accurate and complete.



MICHAEL D MAHAR
DISTRICT MANAGER
Certificate # 370343
05/14/14

For questions please call
our Customer Service Dept.
at (800) 843-3604

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator ID Number M A D 0 0 1 9 6 3 2 6 3	2. Page 1 of 1	3. Emergency Response Phone (800) 424- 9300	4. Manifest Tracking Number 002232788 GBF		
5. Generator's Name and Mailing Address HARVARD UNIVERSITY Attn: Lance Schumacher 46 BLACKSTONE ST CAMBRIDGE MA 02139				Generator's Site Address (if different than mailing address) HARVARD UNIVERSITY 33 KIRKLAND ST CAMBRIDGE MA 02138			
Generator's Phone: (617) 389- 8880							
6. Transporter 1 Company Name VEDIA ES TECHNICAL SOLUTIONS				U.S. EPA ID Number NYD080631369			
7. Transporter 2 Company Name Freehold Cartage Inc				U.S. EPA ID Number NYD054126164			
8. Designated Facility Name and Site Address CWM CHEMICAL SERVICES, L.L.C. 1550 BALMER RD. MODEL CITY NY 14107				U.S. EPA ID Number NYD049836679			
Facility's Phone: (716) 286- 1550							
GENERATOR	9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers		11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
			No.	Type			
	X	1. RQ, UN3432, POLYCHLORINATED BIPHENYLS, SOLID MIXTURE, 9, III	1	DM	25	K	MA02 B007
14. Special Handling Instructions and Additional Information 1. NY304937 - CAULK AND DEBRIS WITH PCBS >50 PPM PCBS SERVICE REQUEST # See PCB Continuation Sheet for information required by 40 CFR 761.207(a) FRI SERVICE CONTRACTED BY WASTE MANAGEMENT CCN24117 OSD = 5/12/14 JB 81664231							
15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.							
Generator's/Offeror's Printed/Typed Name Lance D. Schumacher Signature [Signature] Month Day Year 5 12 14							
INT'L	16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit: _____ Date leaving U.S.: _____						
	17. Transporter Acknowledgment of Receipt of Materials						
TRANSPORTER	Transporter 1 Printed/Typed Name GABRIEL PEREIRA Signature [Signature] Month Day Year 5 12 14						
	Transporter 2 Printed/Typed Name Darin P. Smith Signature [Signature] Month Day Year 5 12 14						
DESIGNATED FACILITY	18. Discrepancy						
	18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection						
	18b. Alternate Facility (or Generator) Manifest Reference Number: _____ U.S. EPA ID Number _____						
	Facility's Phone: _____ 18c. Signature of Alternate Facility (or Generator) _____ Month Day Year _____						
19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)							
1. H132		2.		3.		4.	
20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a							
Printed/Typed Name Richard LaBENP Signature [Signature] Month Day Year 05 20 14							



CWM CHEMICAL SERVICES, LLC

1550 Balmer Road
Model City, NY 14107
716 286 1550
716 286 0211 Fax

HARVARD UNIVERSITY
ATTN: LANCE SCHUMACHER
MAD001963263
46 BLACKSTONE, ENV/SAFETY PROGRAMS
CAMBRIDGE MA 02139

CERTIFICATE OF DESTRUCTION

CWM CHEMICAL SERVICES, L.L.C., EPA ID: NYD049836679, has received waste material from HARVARD UNIVERSITY on 05/20/14 as described on Shipping Document number 002232788GBF Sequence number 01. CWM CHEMICAL SERVICES, L.L.C. hereby certifies that the above described material was incinerated and thereby destroyed in accordance with the 40 CFR part 761 as it pertains to the incineration of Poly-Chlorinated Biphenyl contaminated materials.

Profile Number: NY304937
CWM Tracking ID: 8166423801
CWM Unit #: 1*0
Disposal Date: 06/04/14

Under civil and criminal penalties of law for the making or submission of false or fraudulent statements or representations (18 U.S.C 1001 and 15 U.S.C. 2615) I certify that the information contained in or accompanying this document is true accurate and complete. As to the identified section(s) of this document for which I cannot personally verify truth and accuracy, I certify as the company official having supervisory responsibility for the persons who, acting under my direct instructions, made the verification that this information is true accurate and complete.

MICHAEL D MAHAR
DISTRICT MANAGER
Certificate # 370632
06/09/14

For questions please call
our Customer Service Dept.
at (800) 843-3604

APPENDIX E: DATA VALIDATION SUMMARY

WILLIAM JAMES HALL - PROJECT SUMMARY

ConTest Analytical Laboratory Job Numbers: 14D0409, 14D0509, 14D0663, 14D0846, 14D1190, 14E0452, & 14F0745

A modified Tier II validation was performed on the data. The criteria detailed below were used to qualify the data. Raw data were not used to verify the results reported by the laboratory.

Samples were received at 2.3, 2.7, 2.8, 3.5, 4.7, 4.9, and 5.3 degrees Celsius. No qualifications were applied.

PCBs:

All polychlorinated biphenyl compound (PCB) samples were extracted and analyzed within technical holding times. No qualifications were applied.

All PCB surrogates met acceptance criteria (30-150%) or were diluted out with the following exceptions:

LAB ID	SAMPLE ID	TCX (%/%)	DCB (%/%)	QUALIFIER
14D0409-02	WJH-VBC-031	OK/OK	156/160	None, sample ND
14D0509-03	WJH-VBC-036	OK/OK	OK/29.9	None, only 1 out

TCX = tetrachloro-m-xylene

DCB = decachlorobiphenyl

The PCB method blanks were non-detect (ND) for all target analytes. No qualifications were applied.

The PCB field blank sample, WJH-VBCQ-053 (14D0846-01), was ND for all target analytes. No qualifications were applied.

No PCB matrix spike/matrix spike duplicate (MS/MSD) was performed on a sample from these analytical packages. No qualifications were applied.

The PCB laboratory control sample/laboratory control sample duplicate (LCS/LCSD) met acceptance criteria. No qualifications were applied.

PCB field duplicate samples WJH-VBC-051 (14D0846-04)/WJH-VBCD-052 (14D0846-05) met acceptance criteria. No qualifications were applied.

The relative percent difference (RPD) between the column results for all detected Aroclors met acceptance criteria with the following exception:

LAB ID	SAMPLE ID	PCB	RPD	QUALIFIER
14D0663-04	WJH-VBC-048	1260	29.6	J
14E0452-03	WJH-VBC-082	1260	30.5	J
14E0452-04	WJH-VBC-083	1254	30.1	J
14E0452-05	WJH-VBC-084	1254	27.7	J
14E0452-06	WJH-VBC-085	1260	37.4	J

According to the case narrative, for Aroclor-1242 in sample WJH-VBC-043 (14D0663-02); "Sample fingerprint does not match standard exactly. Aroclor with the closet matching pattern is reported." No qualifications were applied.

According to the case narrative, for Aroclor-1254 in samples WJH-VBC-043 (14D0663-03), WJH-VBC-049 (14D0846-02), WJH-VBC-089 (14F0745-02), WJH-VBC-088 (14F0745-03), and WJH-VBC-090 (14F0745-04); "Sample contains two incompletely resolved Aroclors. Aroclor with the closest matching pattern is reported." No qualifications were applied.

WILLIAM JAMES HALL - PROJECT SUMMARY

ConTest Analytical Laboratory Job Numbers: 14D0409, 14D0509, 14D0663, 14D0846, 14D1190, 14E0452, & 14F0745

Many samples were analyzed at a dilution due to the high concentration of Aroclors present in the sample and/or due to the sample matrix. Elevated quantitation limits are reported in these samples as a result of the dilutions performed.

Data Check, Inc.
P.O. Box 29
81 Meaderboro Road
New Durham, NH 03855

Gloria J. Switalski:
President



Date: 7/18/2014

APPENDIX F: MONITORING AND MAINTENANCE IMPLEMENTATION PLAN



Monitoring and Maintenance Implementation Plan

Harvard University
William James Hall
33 Kirkland Street
Cambridge,
Massachusetts

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1.3 Remediation Summary	1-2
2. MONITORING AND MAINTENANCE IMPLEMENTATION.....	2-3
2.1 Description of Encapsulated Surfaces.....	2-3
2.2 Long Term Monitoring and Maintenance Activities.....	2-4
2.2.1 Visual Inspections.....	2-4
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2.2.3 Routine Maintenance Activities	2-5
2.3 Action Levels and Corrective Measures	2-5
3. TRAINING REQUIREMENTS	3-1
4. COMMUNICATIONS, REPORTING & SCHEDULE	4-1

TABLES

Table 2-1:	Verification Sample Results
------------	-----------------------------

FIGURES

Figure 1-1:	Site Locus Map
Figure 2-1:	Verification Sample Locations
Figure 2-2:	Encapsulated Surfaces

1. INTRODUCTION

Woodard & Curran, Inc. has prepared this Monitoring and Maintenance Implementation Plan (MMIP) on behalf of the President and Fellows of Harvard College (Harvard). The remediation of polychlorinated biphenyls (PCBs) at the penthouse of the William James Hall building, located at 33 Kirkland Street on the Harvard University campus in Cambridge, Massachusetts (the site) has been completed in accordance with the Notification¹ and the U.S. Environmental Protection Agency's (EPA) April 17, 2014 PCB Cleanup and Disposal Approval granted under 40 CFR 761.61(a) and (c) and 761.79(h) (the Approval).

As required by Condition 18 of the Approval, this MMIP presents the monitoring and maintenance activities that will be conducted to assess the long-term effectiveness of encapsulants applied to select building surfaces as part of the PCB remediation activities completed at the site as further described in the Final Completion Report.

1.1 SITE DESCRIPTION

The building known as William James Hall, originally constructed in 1964, is a 15-story masonry building used by Harvard's Department's of Psychology, Sociology and Social Anthropology for classroom and office spaces. The building's original flat membrane roof was previously replaced in or around 1986. The remediation work described in the Final Completion Report was related to the roof membrane replacement and renovation project performed in 2014. The central portion of the roof contains an inner wall constructed out of poured concrete and concrete aggregate panels that encloses the penthouse and mechanical equipment area. The mechanical enclosure wall contains a small louver and a door on the south façade, and one door on the east façade. The roof also contains several other mounted HVAC and electrical units. The roof is locked and non-accessible to building occupants. Building facility personnel are the only ones who access the roof and this is on a very limited basis, as there are no established work stations and only roof-top equipment.

A Site Locus map is provided as Figure 1-1 at the end of this section.

1.2 SITE BACKGROUND

William James Hall was constructed during a time period when PCBs were sometimes used in the manufacture of certain building materials (e.g., caulking). In preparation for a roof replacement project, a materials survey was conducted to determine the presence or absence of various hazardous materials within the renovation area, which included inspection and sampling suspect materials for asbestos and PCBs. Characterization results indicated that PCBs were present in caulking at concentrations up to 1,041 parts per million (ppm). Asbestos was not detected in any of the caulking samples tested. Due to the presence of PCBs at concentrations ≥ 50 ppm in certain exterior caulking and sealants and the scheduled roofing replacement project which included plans to disturb these materials, a PCB remediation plan was submitted to EPA on November 8, 2013 which was subsequently approved on April 17, 2014.

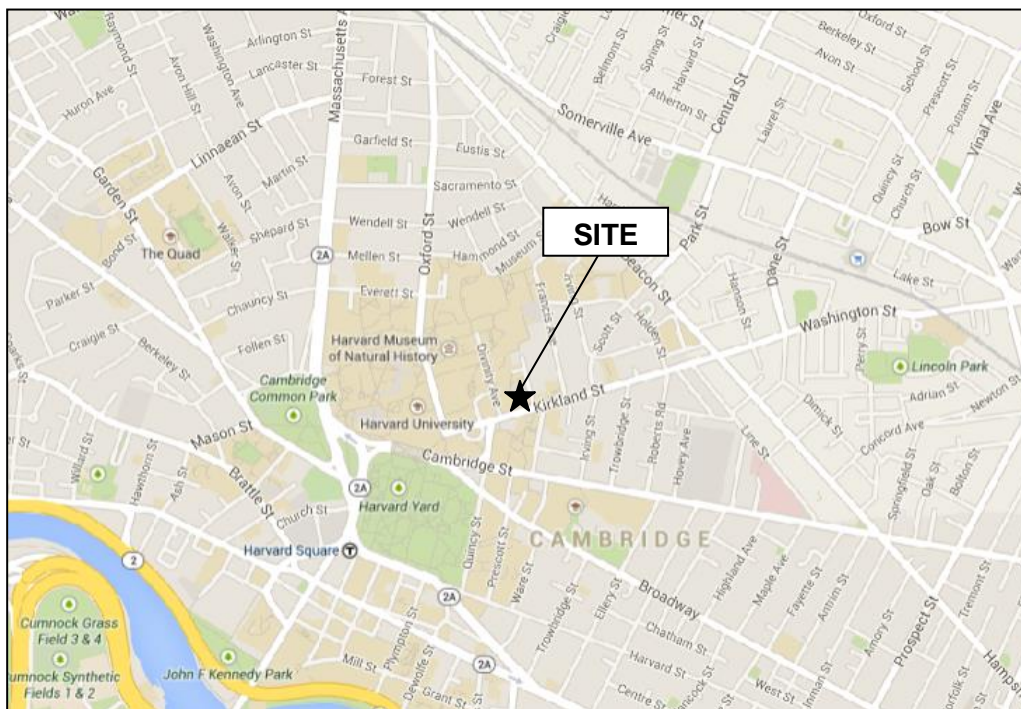
¹ Information was prepared by Woodard & Curran on behalf of Harvard to satisfy the requirements under 40 CFR 761.61(a) and (c) and 761.79(h). Information was submitted on November 8, 2013 (Remediation Plan), February 21, 2014 (Response to Comments), March 5, 2014 (via e-mail additional PCB Remediation Plan Clarification) and April 24, 2014 (Modification, Notification and Certification Conditions). These submittals, together, form the "Notification."

1.3 REMEDIATION SUMMARY

As documented in the Final Completion Report for the PCB remediation work, PCB remediation activities completed at the site included the following:

- Removal of PCB-containing building materials for off-site disposal, including exterior caulking and certain components coated or in direct contact with the former caulking. A total of 575 kilograms of PCB waste contained in 12 drums was removed for off-site disposal as ≥ 50 ppm PCB waste to the CWM Chemical Services, Inc. hazardous waste disposal facility located in Model City, New York.
- Encapsulation of PCB-impacted building concrete scheduled to remain in place. Residual concentrations of PCBs remain at levels greater than 1 ppm (up to 600 ppm) in select concrete surfaces adjacent to former PCB caulking. These surfaces have been encapsulated using a combination of liquid coatings (e.g., epoxy or acrylic coatings) and physical barriers (e.g., metal flashing, rubber roof membrane).
- A draft deed notice has been prepared and will be filed with the Middlesex County Registry of Deeds to identify the affected areas and to identify the allowable uses of these areas (*pending as of the date of this plan*).

Figure 1-1: Site Locus Map



2. MONITORING AND MAINTENANCE IMPLEMENTATION

This section of the plan includes a description of the encapsulated surfaces and the proposed monitoring and maintenance activities that will be performed in order to assess the effectiveness of the encapsulants over time. The results of future monitoring activities will be compared to the baseline data collected after the encapsulants were initially applied, and will be compared to the site-specific action levels presented below.

2.1 DESCRIPTION OF ENCAPSULATED SURFACES

As described in the Final Completion Report documenting the PCB remediation activities performed at the site, certain exterior concrete masonry building materials formerly in direct contact with or adjacent to former PCB caulking were encapsulated as a risk-based management approach under 40 CFR 761.61(c) where it was determined that physical removal was an infeasible remedial approach. This included concrete in former direct contact with the caulking (i.e., coated) as well as exterior concrete wall surfaces beyond the former joints at three locations:

- The inner perimeter walls of the mechanical pit area;
- The inner perimeter walls of the stairwell roof; and
- The perimeter of a louver installed in the penthouse façade (within the mechanical pit area).

After removal of the PCB caulking from these locations as described in the Completion Report, concrete surfaces in former direct contact with PCB caulking were encapsulated with one thick coat of epoxy (Devcon 2 Ton), and concrete surfaces beyond the former joints were encapsulated with a protective acrylic coating (Conpro Lastic). Baseline surface wipe samples were collected from the encapsulated surfaces using hexane-soaked gauze wipes supplied by the analytical laboratory over 100 cm² areas in accordance with 40 CFR 761.123. As presented in Table 2-1, analytical results were reported as follows:

- Direct contact baseline surface wipe samples collected within the joint were reported as non-detect for PCBs in all three baseline samples, as PCBs were not detected above the laboratory's minimum reporting limit of <0.2 µg/100cm².
- Baseline surface wipe samples collected from the concrete façade further away from the joint were reported with PCB levels ranging from 0.27 to 2.08 µg/100cm² in the four samples at a distance of 36 inches above the former caulked joint.

Due to the presence of PCBs above the low-occupancy cleanup level of 25 ppm at these locations, encapsulated surfaces subject to ongoing monitoring as described in this MMIP include:

- Concrete in former direct contact with PCB flashing / membrane sealant located along the inner perimeter walls of the mechanical pit and stairwell roof (approximately 165 linear feet in former contact with caulking; encapsulated with Devcon 2 Ton epoxy and located beneath a secondary barrier [i.e., new metal flashing and rubber membrane]). Although concrete removal achieved PCBs < 1 ppm along the lower perimeter stairwell wall flashing joint, this area was encapsulated for consistency.

- Concrete in former direct contact with PCB caulking along the perimeter of the louver (approximately 11 linear feet in former contact with caulking; encapsulated with Devcon 2 Ton epoxy and located beneath a secondary barrier [i.e., new metal louver]).
- Vertical concrete surfaces of the inner perimeter walls of the mechanical pit and stairwell roof (encapsulated with Conpro Lastic or located beneath a physical barrier [i.e., metal electrical outlet boxes, mechanical equipment brackets]).

Due to the installed configuration of the new roofing system and metal louver, concrete surfaces encapsulated with Devcon 2 Ton epoxy are inaccessible for future surface wipe sample collection as they are covered by a secondary barrier (i.e., metal flashing, rubber membrane, and/or a metal louver). Adjacent concrete surfaces encapsulated with the acrylic coating are accessible for future surface wipe sample collection as they are not located beneath a secondary barrier.

Additional details documenting the remedial activities completed in association with the encapsulated surfaces are provided in Section 2.4 and 2.6 of the Final Completion Report. Baseline sample locations and encapsulated surfaces are generally depicted on Figures 2-1 and 2-2, respectively.

2.2 LONG TERM MONITORING AND MAINTENANCE ACTIVITIES

The long term monitoring and maintenance activities proposed in this MMIP will include visual inspections and representative surface wipe samples from encapsulated surfaces as described below.

2.2.1 Visual Inspections

Visual inspections of the encapsulated surfaces will consist of an assessment of the following:

- A general inspection of the condition of accessible encapsulated surfaces;
- Signs of wear, pitting, peeling, or breakages in the coating; and
- Signs of weathering or disturbance of the replacement caulking or any other secondary barriers.

The results of these inspections will be documented in the report submitted to the EPA (see Section 4).

2.2.2 Sample Collection

Surface wipe samples will be collected from select encapsulated surfaces to aid in determining the effectiveness of the encapsulant over time. Surface wipe samples will be collected following the standard wipe test procedures described in 40 CFR 761.123, using a laboratory-supplied gauze pad over a 100 square centimeter surface area. Wipe samples will be transported to the laboratory under standard chain of custody procedures, extracted by USEPA Method 3540C (Soxhlet) and analyzed for PCBs by USEPA Method 8082.

To determine whether a surface would be selected for long-term monitoring, potential sample locations at each of the encapsulated surfaces were selected based on their accessibility (i.e., walls without a secondary barrier; surfaces presently covered by a secondary physical barrier such as a new metal flashing or rubber roof membrane cannot be sampled) and their likelihood of contact (sample locations will be biased toward locations most likely to be touched by a human receptor, typically around 4 feet above ground surface).

Based on the criteria presented above, four surface wipe samples (one per mechanical pit area wall) will be collected from representative locations of the encapsulated surfaces. The south wall sample will be representative of both the concrete façade above the perimeter wall flashing joint as well as the concrete façade adjacent to the louver. No samples are proposed for the concrete façade above the perimeter stairwell wall flashing joint as this roof level is not routinely accessed by building personnel given that the roof does not contain any pieces of mechanical equipment (only several antennas) and there are no appropriate safety tie-offs. Where applicable, sample locations will be biased towards locations selected during baseline sampling activities.

2.2.3 Routine Maintenance Activities

Based on a review of the encapsulation products' technical specifications, it is not anticipated that the coatings applied to the exterior building surfaces will require any routine maintenance activities other than any corrective measures that may be deemed necessary as a result of the visual inspections or laboratory analytical data.

2.3 ACTION LEVELS AND CORRECTIVE MEASURES

A combination of visual inspections and laboratory sample results will be used to verify the continued effectiveness of the coatings over time and to determine what corrective measures may be required. As discussed previously, building facility personnel are the only people who access the roof and this is on a very limited basis, as there are no established work stations and only roof-top equipment. The roof is also locked at all times.

Upon receipt of the laboratory results after each monitoring round, the data will be compared to baseline data and the following action levels to determine whether additional monitoring or corrective measures are needed:

- At locations where sample results are reported with PCBs $\leq 1 \mu\text{g}/100 \text{ cm}^2$, no corrective measures will be implemented.
- At locations where sample results are reported with PCBs $> 1 \mu\text{g}/100 \text{ cm}^2$, this location will be selected for follow-up monitoring during the next round of sampling to establish patterns or trends in concentrations. If increasing concentrations are determined, then additional coatings may be applied and/or alternative solutions will be discussed with EPA.

These action levels are considered to be appropriate for this project given the limited accessibility to encapsulated areas in comparison to potential direct contact exposures.

3. TRAINING REQUIREMENTS

It is not anticipated that building occupants or facility personnel would come into prolonged or routine contact with the encapsulated surfaces given that the roof is locked and not accessible to building occupants and that there are no established work stations. Any contact with the encapsulated surfaces is expected to be incidental. It is not anticipated that workers or occupants would require any special training or need to take extra precautions due to the presence of the encapsulants on the building's roof surfaces; however, Harvard's Environmental Health & Safety (EHS), will conduct awareness training for maintenance or other facility personnel that may access/work on the roof to communicate the locations and purpose of the encapsulants.

Any non-routine projects that involve disturbance of building materials on the open mechanical area walls will be reviewed by Harvard prior to initiation. If a planned project has the potential to disturb any encapsulated surfaces, relevant and appropriate worker training requirements and procedures specific to the task will be developed and implemented. Any such activities will be reported to EPA in the MMIP report.

4. COMMUNICATIONS, REPORTING & SCHEDULE

The results of the monitoring and maintenance activities will be documented in a report submitted to the EPA. This report will document the following:

- Results of the visual inspections;
- Results of the sampling and analyses;
- Comparisons to action levels and recommendations for corrective measures;
- Any corrective measures implemented;
- Any non-routine projects conducted at the building that encountered the coatings, and a description of the training and protective measures that were implemented;
- A statement on the continued effectiveness of the encapsulants; and
- Any proposed modifications to the monitoring and maintenance program, including a recommendation as to the frequency for the next round of inspections and sampling.

The report will be submitted to EPA following inspection and sample collection. In addition, Harvard EHS will communicate the results and any needs for follow-up actions to personnel responsible for the building.

The initial round of monitoring will commence following approval of this MMIP and is anticipated to be conducted in the Summer of 2015. A recommendation for subsequent rounds of monitoring will be based on these results and included in the report submittal.

Table 2-1
Verification Sample Results
William James Hall - Harvard University

Location	Sample Description	Bulk Concrete Samples						Surface Wipe Samples						
		Distance from Joint (inches)	Bulk Sample ID	Sample Date	Reporting Limit	Total PCBs	Qualifier	Distance from Joint (inches)	Wipe Sample ID	Sample Date	Reporting Limit	Total PCBs	Qualifier	
Area 1 - Roof Perimeter Verification Samples														
Outer Penthouse Perimeter Wall	East penthouse outer façade, 27 ft north of southern penthouse façade	Direct contact	WJH-VBC-035	4/14/14	0.10	ND		Wipe sample analysis is not warranted based on bulk verification sampling results remediation complete.						
	South penthouse outer façade, 5 ft west of eastern penthouse façade	Direct contact	WJH-VBC-036	4/14/14	0.092	ND								
	South penthouse outer façade, 4 ft east of western penthouse façade	Direct contact	WJH-VBC-037	4/14/14	0.096	ND								
	West penthouse outer façade, 28 ft north of southern penthouse façade	Direct contact	WJH-VBC-043	4/16/14	0.096	0.55								
Inner Mechanical Pit Area Perimeter Wall	East wall, 5 ft south of door	Direct contact	WJH-VBC-038	4/14/14	20	140		36	WJH-VWC-087	06/16/14	0.2	2.08		
		5.0 - 6.0	WJH-VBC-081	5/13/14	96	600								
	West wall,12 ft south of northern wall	Direct contact	WJH-VBC-048	4/17/14	9.7	86	J	36	WJH-VWC-088	06/16/14	0.2	0.91		
		5.0 - 6.0	WJH-VBC-083	5/13/14	97	290	J							
	South wall, 12 ft west of eastern wall	Direct contact	WJH-VBC-051	4/21/14	50	535		Direct contact	WJH-VWE-057	04/22/14	0.2	ND		
		5.0 - 6.0	WJH-VBC-084	5/13/14	96	330	J	36	WJH-VWC-089	06/16/14	0.2	1.3		
	North wall on stairwell wall perpendicular to and 4 ft from northern wall	Direct contact	WJH-VBC-047	4/17/14	0.098	0.40								
		5.0 - 6.0	WJH-VBC-082	5/13/14	0.098	0.56	J							
		North wall, 15 ft east of western wall							36	WJH-VWC-090	06/16/14	0.2	0.27	
	Inner Perimeter Wall Above Stairs	North wall above stairwell, 1 ft west of eastern wall	Direct contact	WJH-VBC-050	4/21/14	9.6	56		Direct contact	WJH-VWE-059	04/22/14	0.2	ND	
5.0 - 6.0			WJH-VBC-085	5/13/14	1.9	23	J							

Table 2-1
Verification Sample Results
William James Hall - Harvard University

Location	Sample Description	Bulk Concrete Samples						Surface Wipe Samples					
		Distance from Joint (inches)	Bulk Sample ID	Sample Date	Reporting Limit	Total PCBs	Qualifier	Distance from Joint (inches)	Wipe Sample ID	Sample Date	Reporting Limit	Total PCBs	Qualifier
Area 2 - Penthouse Expansion Joint Verification Samples													
Penthouse Expansion Joints	East penthouse façade, third joint from south, 4 ft ags	Direct contact	WJH-VBC-030	4/10/14	0.098	ND		Wipe sample analysis is not warranted based on bulk verification sampling results remediation complete.					
	East penthouse façade, second joint from south, 2 ft ags	Direct contact	WJH-VBC-031	4/10/14	0.098	ND							
	East penthouse façade, southernmost joint, 4 ft ags	Direct contact	WJH-VBC-032	4/10/14	0.095	ND							
	South penthouse façade, third joint from east, 5 ft ags	Direct contact	WJH-VBC-033	4/10/14	0.095	ND							
	South penthouse façade, westernmost vertical joint, 8 ft ags	Direct contact	WJH-VBC-034	4/14/14	0.098	ND							
	West penthouse façade, third joint from south	Direct contact	WJH-VBC-042	4/16/14	0.10	ND							
Area 3 - Louver Perimeter Verification Samples													
Louver	Western vertical joint	Direct contact	WJH-VBC-049	4/21/14	47	390		Direct contact	WJH-VWE-061	04/22/14	0.2	ND	
		5.0 - 6.0	WJH-VBC-080	5/14/14	89	530							

- Notes:
1. All bulk samples are collected at a depth of 0-0.5 inches from the masonry surface; results are reported in units of milligrams per kilogram (mg/kg).
 2. All wipe samples are collected over 100 cm² areas in accordance with the standard wipe test method; results are presented in micrograms per 100 square centimeters (ug/100cm²).
 3. Laboratory samples were extracted by Soxhlet (Method 3540C) and analyzed for PCBs by Method 8082.
 4. ND = Not detected above minimum reporting limit, as indicated.
 5. J = Analytical result is qualified as estimated based on data validation.



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CLIENT **HARVARD**

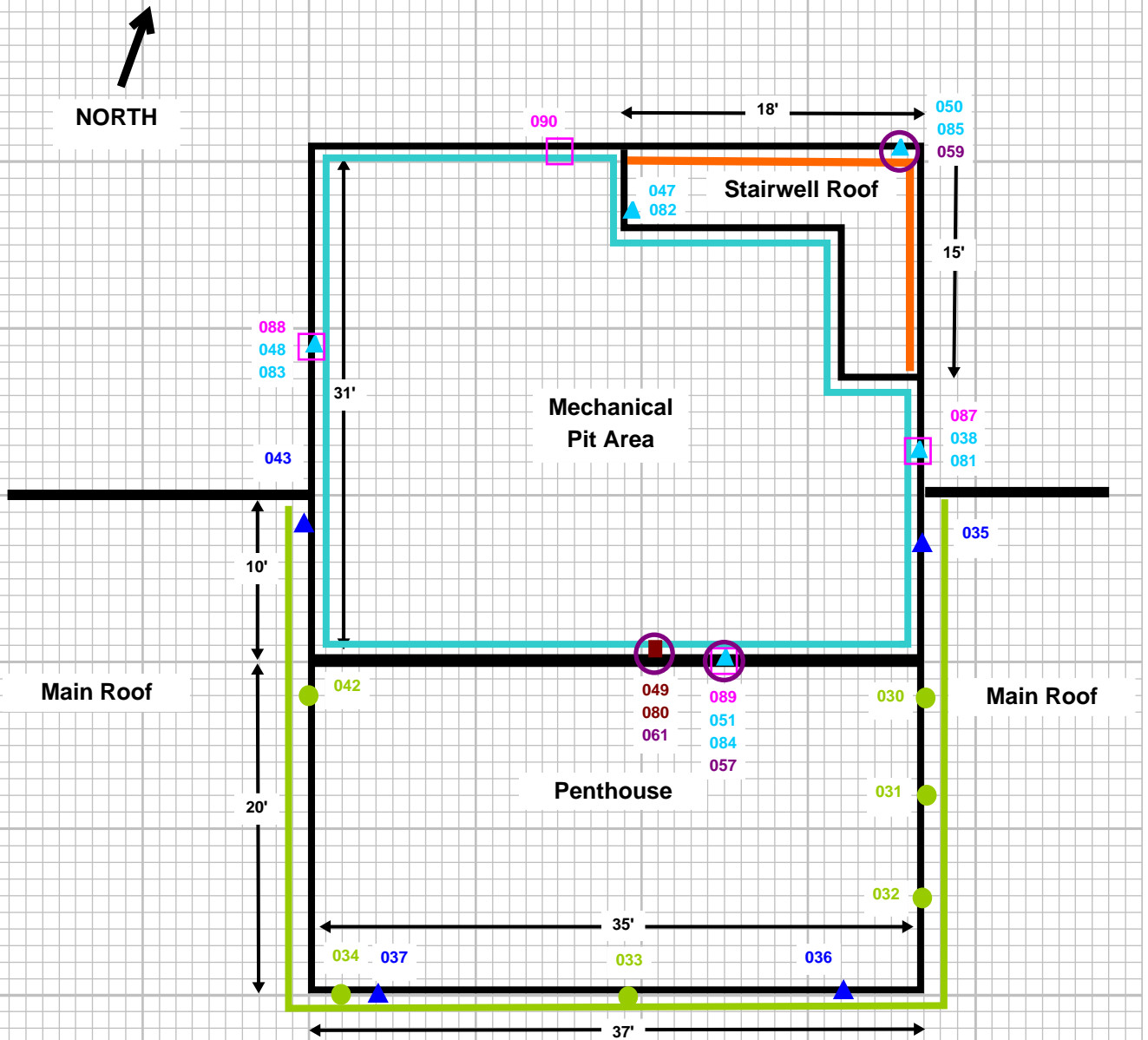
PROJECT **WILLIAM JAMES HALL**

DESIGNED BY _____ DATE **August 29, 2014**

CHECKED BY _____ DATE _____

PROJECT NO. **226574** SHEET NO. **1** OF **1**

FIGURE 2-1: VERIFICATION SAMPLE LOCATIONS



LEGEND

- 038 ▲ = Area 1 - Inner Wall Direct and Indirect Contact Concrete
- 035 ▲ = Area 1 - Outer Wall Direct Contact Concrete
- 030 ● = Area 2 - Expansion Joint Direct Contact Concrete
- 049 ■ = Area 3 - Louver Direct and Indirect Contact Concrete
- 057 ○ = Area 1 - Inner Wall Direct Contact Wipe
- 087 □ = Area 1 - Inner Wall Indirect Contact Wipe

- = Outer Wall Boundary
- = Inner Wall Boundary
- = Stairwell Wall Boundary

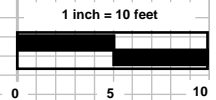
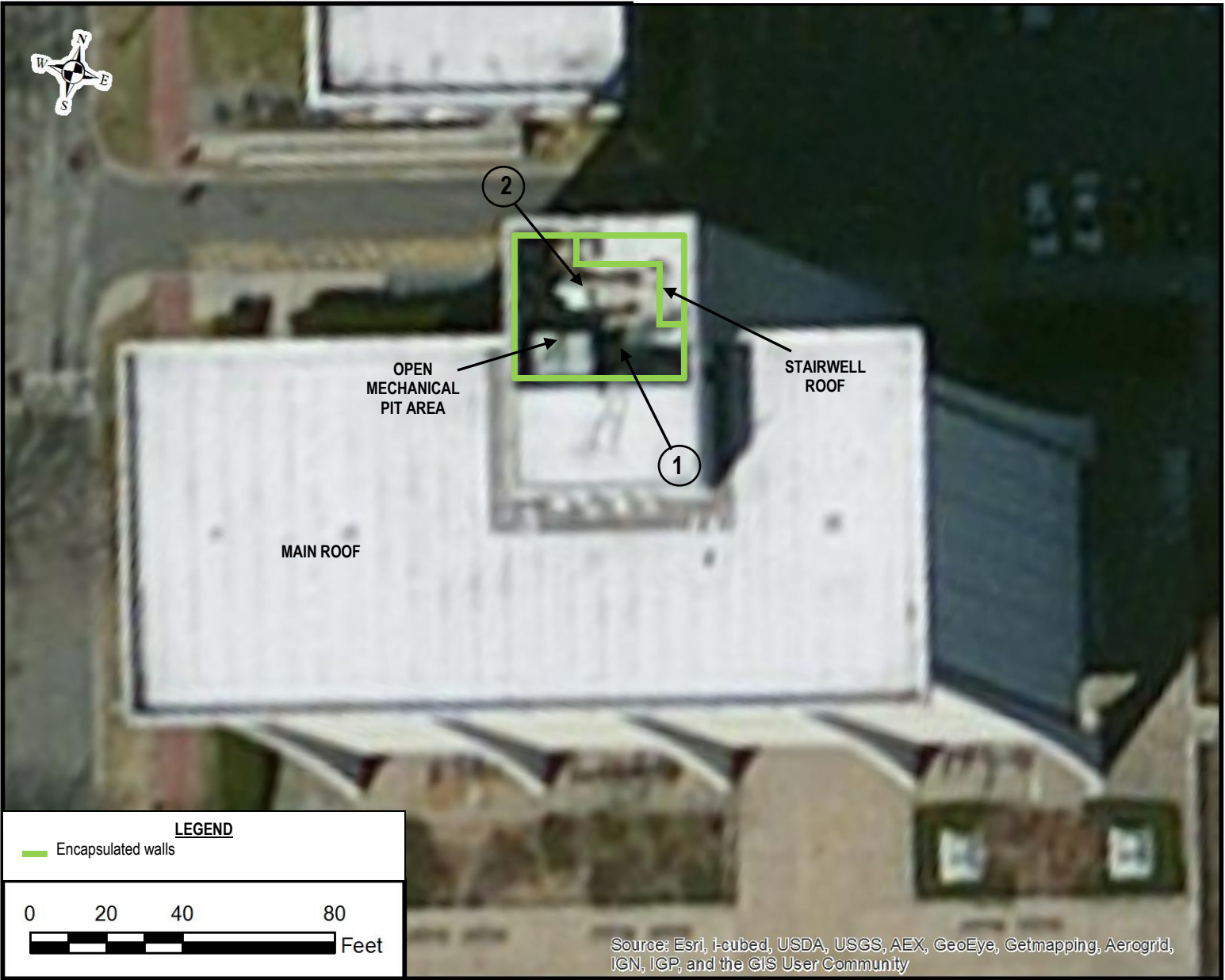


FIGURE 2-2: ENCAPSULATED SURFACES



NOTES:

- 1.) CONCRETE IN FORMER DIRECT CONTACT WITH PCB-CONTAINING FLASHING/MEMBRANE SEALANT LOCATED ALONG THE PERIMETER OF THE OPEN MECHANICAL PIT AREA WALLS ENCAPSULATED WITH DEVCON 2 TON EPOXY AND SUBSEQUENTLY COVERED BY NEW METAL FLASHING AND RUBBER MEMBRANE; TYPICAL FLASHING JOINT SHOWN IN PHOTO LOCATIONS MARKED (A)
- 2.) CONCRETE IN FORMER DIRECT CONTACT WITH PCB-CONTAINING LOUVER SEALANT ENCAPSULATED WITH DEVCON 2 TON EPOXY AND SUBSEQUENTLY COVERED BY NEW LOUVER; LOUVER SHOWN IN PHOTO LOCATION MARKED (B)
- 3.) INNER WALLS OF OPEN MECHANICAL PIT AREA ENCAPSULATED WITH CONPRO ELASTIC OR LOCATED BEHIND PHYSICAL BARRIERS (I.E., ELECTRICAL BOXES, MECHANICAL EQUIPMENT BRACKETS); TYPICAL WALLS SHOWN IN PHOTO LOCATIONS MARKED (C)



PHOTO ①



PHOTO ②